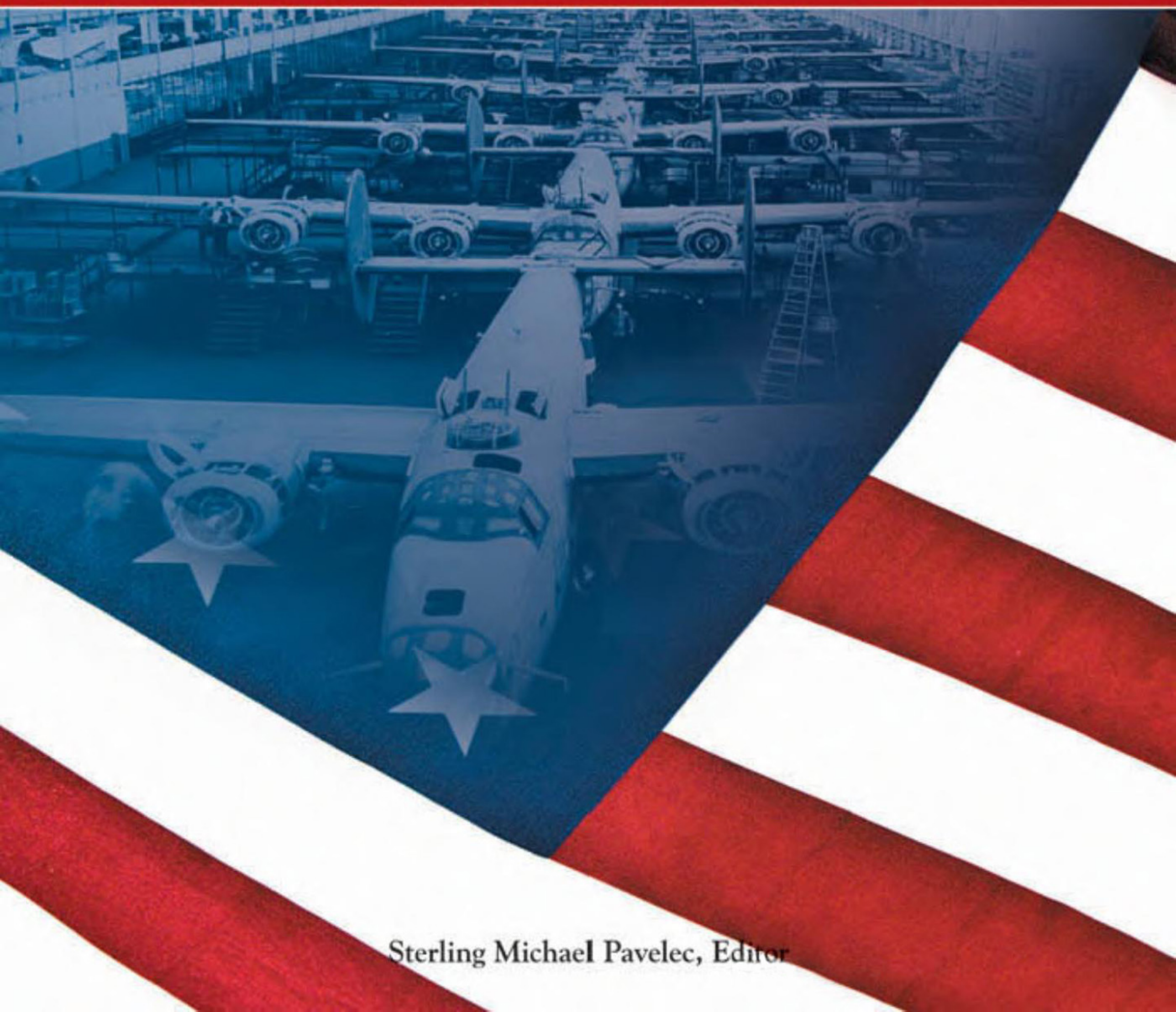




THE MILITARY-INDUSTRIAL COMPLEX AND AMERICAN SOCIETY



Sterling Michael Pavelec, Editor

The Military-Industrial Complex and American Society

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A B C CLIO

Santa Barbara, California • Denver, Colorado • Oxford, England

Library of Congress Cataloging-in-Publication Data

The military-industrial complex and American society / Sterling Michael Pavelec, editor.
p. cm.
Includes bibliographical references and index.
ISBN 978-1-59884-187-9 (acid-free paper) — ISBN 978-1-59884-188-6 (ebook) 1. Military-industrial complex—United States—Encyclopedias. I. Pavelec, Sterling Michael.
HC110.D4M483 2010
306.2'70973—dc22 2009046138

ISBN: 978-1-59884-187-9
EISBN: 978-1-59884-188-6

14 13 12 11 10 1 2 3 4 5

This book is also available on the World Wide Web as an eBook.
Visit www.abc-clio.com for details.

ABC-CLIO, LLC
130 Cremona Drive, P.O. Box 1911
Santa Barbara, California 93116–1911

This book is printed on acid-free paper ∞
Manufactured in the United States of America

This project is dedicated to the scholars who
made this volume possible; I am indebted to all your hard
work and dedication to this project. Special thanks to
Dr. Paul Springer; you have made this journey a joy.

Contents

List of Entries

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Preface

This volume represents the work of more than 50 scholars in an effort to clarify the ambiguities of the U.S. Military-Industrial Complex. First identified in a speech by President Eisenhower in 1961, it had been in being from the earliest days of the confluence of American industrial capacity and international military commitment, specifically the Great War of 1914–1918. Organized at the highest level of government and industry, the Military-Industrial Complex was born of war and fed by American industry.

This project introduces snapshots of important individuals and organizations that built, organized, and even warned about the development and sustenance of the Military-Industrial Complex. Further, contributors provide information on important allied and enemy national capabilities that have shaped American responses in developing military technology. As well, there are vignettes on specific companies important to the Complex, treaties and agreements that have informed or limited American capacity, and wars that have shaped national security responses and weapons development. Finally, several entries discuss ideas that have shaped the Military-Industrial Complex such as the revolution in military affairs and current ideas on counterinsurgency.

The scope of this volume is intentionally broad. Chronologically, the entries begin with the birth of the American Military-Industrial Complex in World War I and build with its enormous growth during World War II. The bulk of the entries address the recognized Complex during the Cold War, and the continued development and evolution during that time. Arguably, the Cold War marked the apex of the Complex, based on the continual threat of global war and multiple regional conflicts. That said, even with the end of the Cold War, the U.S. Military-Industrial Complex continues, providing equipment for our military commitments at the same time as fodder for our news organizations. It is still with us, but has also evolved into the post–Cold War period.

In addition to outlining the history of the organizations and products, we have included entries on the social dimensions of the American Military-Industrial

Complex, both within the United States and in the wider world. It is important to realize that this fits within—and has helped to shape—American society, policy, and foreign relations. We leave it to the reader to decide the dilemma of whether US policy shaped the Complex or the other way around.

I am especially indebted to the contributors to this project; I could not have completed it without so many talented scholars who are leaders in their fields. As well, the understanding and assistance of the managing editor, Pat Carlin, requires special note. This volume is intended to inform, not to create bias; our hope is that it will spark interest and provide resources.

Sterling (Mike) Pavelec
Montgomery, Alabama

Chronology

August 1914–November 1918	World War I. The European powers went to war in 1914, the United States entered on the Allied side in April 1917, committing forces to the European theater by Spring 1918. Woefully unprepared for the conflict, the United States had to hastily rearm, and relied on the Allies for most of their heavy military equipment (i.e., tanks). In the interim between the declaration of war in 1917 and entry into the fight in 1918, the United States hastily built up forces and material for the war. The U.S. War Industries Board (WIB) (1917–1918) was created to streamline production for the American World War I war effort.
1931–1945	World War II (United States actively involved from 1941–1945). Arguably, the war began in Asia in 1931 with Japanese militarism in Manchuria. The Japanese opened aggressive action in the Pacific Theater with invasions of Manchuria and later China, leading to open hostilities in the Pacific. In Europe, Hitler's Germany was diplomatically aggressive as early as 1936, and invaded Poland in September 1939, bringing the Western Allies (Britain and France) to declare war again. France surrendered to Germany in 1940, the Soviets joined the Allies in 1941 when Hitler invaded the Soviet Union (USSR). The Italians were active in the Balkans, Greece, and North Africa, where the Germans also committed troops. Although supplying material for the war, the United States did

not officially enter the war until after the Japanese attack on Pearl Harbor, Hawaii, on December 7, 1941. The United States immediately became the "Arsenal of Democracy," providing war materials and civilian necessities for the beleaguered British and Soviet Allies fighting against the Axis.

1933–1945 President Franklin Delano Roosevelt (to April 1945)

June 1941—Establishment of the Office of Scientific Research and Development (OSRD) (to December 1947). Designed as a bureaucratic structure with scientists, military, and industrial personnel, the OSRD streamlined research, testing, production, and procurement of military equipment for the war effort.

1942–1945—Manhattan Project. The program that combined scientific, military, and industrial might to produce the first atomic weapons.

1945–1991 The Cold War. A 45-year ideological struggle between the United States and USSR over spheres of influence across the globe. Although no fighting broke out between the Americans and Soviets directly, there were proxy wars, episodes of tension, and peripheral conflicts in the struggle between capitalism and communism. The central focus of both was Western Europe, but conflicts raged across the globe, highlighted in Korea, Cuba, Vietnam, and extending to Africa, as well as the Middle East. Diplomacy carried the day, including summits and direct negotiation, and eventually the collapse of the Soviet system by 1991 ushered in the post-Cold War era.

1945–1953 President Harry S. Truman

July 1947—National Security Act. Established the Central Intelligence Agency (CIA) as well as the independent U.S. Air Force and the National Security Resources Board (NSRB). All were efforts to bureaucratize the national security components within the U.S. government.

1948—First Arab-Israeli War (Israeli War of Independence)

June 1948–May 1949—The Berlin Blockade. Soviet blockade of West Berlin and one of the earliest tests of the Cold War bipolar world, announcing a new rivalry between the United States and USSR.

January 1949—President Truman announces Fair Deal. Government domestic programs designed to equalize American society.

March 1949—Revolt of the Admirals. Naval revolt over spending and procurement of high technology systems.

April 1949—Establishment of the North Atlantic Treaty Organization (NATO). A collective security agreement between the United States, Canada, and Western European countries designed to deter the Soviets from expansion into Western Europe.

April 1950—NSC-68. American foreign policy statement announcing opinions on, and plans to deal with, the Soviet Union. Included statements on Soviet intentions and American strategies for "Containment."

1950–1953 The Korean War. Conflict initiated by a North Korean invasion on South Korea, the United Nation's (UN) first test. The US-led UN force repelled North Korean forces early, then Communist China introduced "volunteers" to assist their communist allies. After a back-and-forth struggle, the battle lines stabilized around the 38th Parallel, and negotiations began to end the conflict. The talks dragged on for two years over issues of sovereignty and Prisoners of War (POWs), but were resolved with an armistice in 1953.

1950—Establishment of the Office of Defense Mobilization (ODM) (to 1958). An American program to streamline production and procurement for the military during the Korean War.

September 1950—Defense Production Act. Enacted to control rising costs and prices within the United States during the Korean War.

1953–1961 President Dwight David Eisenhower

January 1954—President Eisenhower announces doctrine of Massive Retaliation (written by Secretary of State John Foster Dulles). The doctrine stated that any attack on the United States or Allies would result in the massive retaliation using nuclear weapons on the Soviet Union.

1954—announcement of Bomber Gap with relation to Soviet capabilities. A concern in the U.S. defense establishment that the Soviets had quantitative superiority in aircraft production over the United States. Led to more funding for the U.S. Air Force.

1955—Adoption of the New Look Defense Policy. A policy designed to cut spending while maintaining and building power. More money and efforts were put into nuclear weapons and delivery systems production (aircraft and missiles).

October 1956—Second Arab-Israeli War (Suez Crisis)

1957—Announcement of perceived Missile Gap with the Soviets. American fear that the Soviets were quantitatively superior in missile production and capability.

January 1961—Eisenhower's Farewell Address. Outgoing President Eisenhower warned the American population to be wary of an emerging Military-Industrial Complex and keep it under control lest it become unmanageable and start directing policy. While beneficial, it could also rapidly run out of control.

1961–1963 President John Fitzgerald Kennedy (assassinated November 22, 1963)

1961—President Kennedy announces Flexible Response. A policy designed to ease nuclear tensions by making clear that the United States had numerous military (nuclear as well as nonnuclear) options for dealing with conflict around the world.

October 1962—Cuban Missile Crisis. When the United States discovered that the Soviets had placed nuclear missiles in Cuba, there began a 13-day standoff between the superpowers. Eventually cooler heads prevailed, diplomacy was successful and the Soviets agreed to remove missiles from Cuba based on a U.S. promise not to invade.

July 1963—Signing of the first Partial Test Ban Treaty (PTBT). An early effort to regulate and limit nuclear weapon testing among the nuclear powers. Only allows for underground (not atmospheric or underwater) testing.

1963–1969 President Lyndon Baines Johnson

May 1964—President Johnson announces Great Society. A domestic program designed to alleviate many economic and social issues in the United States, supporting social programs, health programs, and education reforms.

August 1964—Gulf of Tonkin Incident and Tonkin Gulf Resolution. After two American destroyers were

fired on, off the coast of North Vietnam, President Johnson asked congress for latitude to commit troops and resources to help secure South Vietnam. Permission was granted in the subsequent Gulf of Tonkin Resolution, and was a major turning point in U.S. involvement in the theater.

June 1967—Third Arab-Israeli War (Six-Day War).

1964–1973 The Vietnam War. With ancient origins, the Vietnam conflicts once again emerged during the transitions following World War II. The French, having lost control to the Japanese during the war, tried to reassert dominance over French Indochina after the war. Nationalist Vietnamese, led by the socialist Ho Chi Minh, began an independence movement that culminated with the expulsion of the French by 1954. The United States considered the noncommunist South Vietnam important enough to secure and stabilize and offered equipment and advisors early. By 1964 the Johnson administration committed American troops to the fight against a growing South Vietnamese insurgency (the Viet Cong), which was compounded by a conventional threat from the North (the North Vietnamese Army). Efforts in Vietnam were hamstrung by lack of direction, poor strategies, and social problems in the United States. Despite overwhelming military successes, South Vietnam suffered from a lack of legitimacy and powerlessness. The Vietnam War was mired in controversy and lacked focus. Johnson's administrative goals for the United States were abandoned; he decided to forgo running for a second term. Nixon won the presidency on a promise to end the war, which he did in 1973, after extensive bombing and diplomatic efforts. The South Vietnamese were left to fend for themselves and succumbed to conventional attacks from North Vietnam in 1975.

1969–1974 President Richard Milhous Nixon

November 1969–May 1972—Strategic Arms Limitation Talks (SALT I). Talks between the Soviets and Americans to limit land-based and sea-based missiles.

January 1973—Paris Peace Accords (1973). The United States formally ends its involvement in South Vietnam, completing President Nixon's "Peace with Honor." The United States immediately withdraws ground forces from South Vietnam.

October 1973—Fourth Arab-Israeli War (October War, Ramadan War, Yom Kippur War).

1974–1977 President Gerald Rudolph Ford

April 1975—Fall of Saigon. South Vietnam finally loses the conventional struggle to North Vietnam, the United States decides not to respond.

July–August 1975—Helsinki Accords. "Declaration on Principles Guiding Relations Between Participating States" were a series of agreements designed to strengthen détente and smooth relations between the superpowers and their client states.

1977–1981 President James "Jimmy" Earl Carter Jr.

February 1977—Newly elected President Carter cuts defense budget by $6 billion, orders withdrawl of nuclear weapons from South Korea.

1977–1979—Strategic Arms Limitations Talks (SALT II). Building on SALT I, further talks to cap nuclear missile production at a maximum of 2,250 each.

November 1979—Iranian Hostage Crisis begins. In the midst of the Iranian Revolution, 52 Americans at the U.S. Embassy in Tehran are taken hostage. They remained hostage for 444 days, until after Reagan is elected. During the crisis, Carter orders Operation Eagle Claw to rescue the hostages, which is a disaster that ends with two crashed aircraft and eight dead U.S. servicemen.

1981–1989 President Ronald Wilson Reagan

March 1983—Announcement of the Strategic Defense Initiative (SDI) (ongoing). A high-technology (and high-cost) program designed to protect the United States from Soviet missiles. SDI is designed to be an Anti-Ballistic Missile (ABM) system that could potentially protect the United States from a Soviet launch.

October 1983—Operation Urgent Fury. The invasion of Grenada, as ordered by the president, responding to an internal political crisis that resulted in the endangerment of U.S. citizens at various schools on the island.

April 1986—Operation El Dorado Canyon. Bombing attack on Libya in response to their links to international terrorism.

October 1986—Goldwater-Nichols Act. Legislation signed by the president designed to curtail inter-service rivalries in the U.S. military. The act restructured the chain of command, introducing Combatant Commanders for specific areas of the globe, and their relationship to the Department of Defense (DOD) and the president. Also introduced the concept of "jointness," officers from each branch were required to serve joint tours with other services to facilitate more cooperation between the different services (Air Force, Army, Marine Corps, Navy). To this day, officers are required to complete Joint Professional Military Education (JPME) for promotion.

1989–1993 President George Herbert Walker Bush

December 1989—Operation Just Cause. The invasion of Panama, ordered by Bush, was to arrest Panamanian dictator Manuel Noriega and accomplish four tasks: safeguard U.S. citizens in Panama, restore human rights and democracy, disrupt the drug trade, and secure the Panama Canal. Noriega was returned to the United States to stand trial, and elections were restored in Panama.

January–March 1991—Persian Gulf War I. Following an Iraqi invasion of Kuwait, the United States led an international coalition against Saddam Hussein. In a short Operation Desert Storm, the coalition kicked Iraqi forces out of Kuwait, proving the effectiveness of both the Goldwater-Nichols Defense Reorganization Act and the superiority of U.S. technology. However, even with the Iraqi forces in full retreat, the United States decided not to press the advantage. A peace was brokered and Hussein was allowed to retain control of Iraq. President Bush decided that it would fracture the coalition to continue on to Baghdad to depose Hussein. The operation was hailed as a quick victory; the peace was less stable.

1992–2001 President William Jefferson Clinton

December 1992–May 1993—Operation Restore Hope. American troops were landed in Somalia to restore peace, stability, democracy, and institute humanitarian efforts in the war-torn country. Under President Clinton, the operation was handed over to the UN in Spring 1993.

August–September 1995—Operation Deliberate Force. Air campaign over Bosnia to deny the Bosnian Serb Army mobility, protect vital UN safe areas, and halt genocide.

March–June 1999—Operation Allied Force. Air campaign against the Federal Republic of Yugoslavia in Kosovo. Intended to bring peace and stability to the region by defeating Yugolav military force, the effort was successful. Peace was declared and order was restored.

2001–2009 President George Walker Bush

September 11, 2001—U.S. homeland is attacked by transnational terrorists. Four hijacked commercial airliners are used as "guided missiles" and flown into high-profile targets. One airliner is flown into each of the World Trade Center main towers in New York City; one hits the Pentagon in DC. Another crashes in rural Pennsylvania, possibly en route to Capitol Hill.

October 2001—U.S. Patriot Act. Following the attacks of September 11, 2001, the United States instituted reforms to protect itself by imposing measures that curtailed many freedoms. While overwhelmingly successful, Patriot Act reforms still chafe many Americans in the evolving era of transnational terrorism.

October 2001—Operation Enduring Freedom. The U.S. committed troops and airpower to Afghanistan to topple the Taliban regime, introduce democracy to the country and region, and remove terrorist training camps in the country. The campaign is ongoing.

2001–present—The Global War on Terrorism (GWOT). President Bush announced the GWOT as a response to the 9/11 attacks, in the form of Operation Enduring Freedom (Afghanistan) and Operation Iraqi Freedom. In an ongoing struggle against transnational terrorism, the U.S. Departments of Defense, State, and Homeland Security, in cooperation with the renewed Military-Industrial Complex, are waging multiple campaigns to defeat terrorism around the world.

March 2002—Creation of the Department of Homeland Security. This new department was instituted to not only protect the American homeland, but

also to streamline the defense and intelligence communities. The Department of Homeland Security has evolved to deal with transnational terrorism in an emerging era of warfare.

March 2002–present—Operation Iraqi Freedom (Persian Gulf War II). The United States led a new coalition of nations to depose Saddam Hussein, introduce democracy to the Middle East, and secure Weapons of Mass Destruction (WMDs) from falling into the hands on transnational terrorists. Following the successful Operation Desert Storm, the United States and UN still had to impose sanctions on Saddam Hussein's Iraq when he continued to pursue WMDs. Citing Hussein's record of human rights abuses and pursuit of WMDs, the United States invaded Iraq in 2003 to remove the dictator and bring stability to the Middle East. Although the initial military actions were overwhelmingly successful, bungled occupation and peacekeeping efforts have led to resistance, insurgency, and unrest in Iraq. To date, U.S. troops are still in Iraq attempting to secure the population in order for democracy to flower.

2009–present — President Barack Hussein Obama

February–June 2009—In his first 100 days, President Obama has been plagued by an economic crisis and two unpopular wars (Afghanistan and Iraq). Although substantial decisions will emerge, initial efforts from Washington have focused on the domestic economy, and military cuts seem likely. Foreign policy experts predict that Obama will downsize the American military footprint in one or both conflicts.

A

ACHESON, DEAN GOODERHAM (1893–1971)

U.S. secretary of state (1949–1953) and chief architect of U.S. foreign policy in the formative years of the Cold War. Born on April 11, 1893, in Middletown, Connecticut, to British parents, Dean Acheson attended the prestigious Groton School and graduated from Yale University in 1915. He earned a degree from Harvard Law School in 1918 and went on to serve as private secretary to Supreme Court Justice Louis Brandeis from 1919 to 1921. After his Supreme Court stint, Acheson joined a Washington, D.C., law firm. He entered public life in 1933 when President Franklin D. Roosevelt named him undersecretary of the treasury. Acheson resigned soon thereafter, however, over a disagreement concerning gold and currency policies. In 1940 he authored a key legal opinion that led to the Lend-Lease program. In 1941 he became assistant secretary of state and then undersecretary of state in 1945.

A brilliant legal mind with a regal bearing and a biting wit, Acheson initially favored a policy of postwar cooperation with the Soviet Union. But he quickly reversed his view and along with George F. Kennan became one of the chief proponents of the Cold War containment policy. Unlike Kennan, who believed that the contest with the Soviet Union was primarily political in nature, Acheson stressed the military dimension. Sobered by the failure of democratic nations to halt the Axis powers in the 1930s, Acheson advocated a policy of developing military strength before negotiating with the Soviet Union. After the Soviet Union detonated its first atomic bomb in September 1949, he played a leading role in persuading President Harry S. Truman to move ahead with the development of the hydrogen bomb.

Acheson also played a critical role in implementing major Cold War initiatives in Europe. When the British informed the United States in early 1947 that they no longer possessed the



Secretary of State Dean Acheson signs the North Atlantic Treaty on behalf of the United States on April 4, 1949. (NATO Photos)

financial means to support Greece and Turkey, Acheson pushed the Truman administration to take quick action, warning that if the United States did not supplant British power in the Eastern Mediterranean, the result would likely be Soviet control of the region. Truman then announced his Greco-Turkish aid package and enunciated the Truman Doctrine to augment the containment policy. Acheson aggressively promoted the 1947 Marshall Plan to aid West European recovery efforts and to resist pressures that might lead to communist regimes there. Despite his role in creating the United Nations (UN), Acheson did not believe that it could prevent Soviet aggression or the spread of militant communism. Instead, he trusted military power and saw the North Atlantic Treaty Organization (NATO) as the best means of defending the West from the Soviets. NATO had the added benefits of strengthening U.S. ties with Europe, quelling internal unrest, and binding West Germany to the alliance.

When Acheson was sworn in as secretary of state on January 21, 1949, he was already recognized as the key architect of postwar foreign policy. As such, Truman, a great admirer of Acheson, gave him wide latitude in foreign policy matters. During his tenure in office, Acheson pushed through the implementation of National Security Council Report NSC-68 and won Senate approval for continued stationing of American troops in Europe and for extensive military aid to the NATO allies. He failed, however, to secure European approval for

German rearmament, which was stymied by French opposition.

Acheson's tendency to view international affairs largely from a European perspective hampered his efforts to deal with rising nationalism in the developing world. His attachment to a world united by imperial prosperity and order created unnecessary problems for the Western Allies as well as for emerging nations. Asia, possessing no significant industrial base outside of Japan, ranked low among Acheson's priorities. He based American policy on the tenuous—and, as it turned out, faulty—premise that Communist China was the puppet of the Soviet Union. He sided with the French regarding Indochina, advising Truman to make what proved to be a fateful commitment of American assistance to anti-Viet Minh forces in 1950. Acheson all but ignored Africa and Latin America, mainly because neither region was as yet on the front lines of the Cold War. Like those who preceded him, Acheson viewed Britain as an indispensable American ally and partner.

A primary target of Republican Senator Joseph McCarthy's anticommunist witch hunt, Acheson was lambasted for being friendly with alleged spy Alger Hiss, "losing" China to communism, and being unable to end the Korean War, which Acheson's enemies wrongly believed he provoked by publicly excluding it from America's "defense perimeter" in a January 1950 speech. Acheson also provided fodder for other Republicans, namely Richard M. Nixon, who in 1952 derided Democratic presidential nominee Adlai Stevenson for having graduated from "Dean Acheson's College of Cowardly Communist Containment."

Acheson retired from public life in 1953 but was not disengaged from public policy. He soon became the main Democratic critic of President Dwight D. Eisenhower's foreign policy. Acheson regarded NSC-68, which advocated the strengthening of conventional military forces to provide options other than nuclear war, as the foreign policy bible for the Cold War era. When the Eisenhower administration committed itself to a policy of massive retaliation that emphasized nuclear responses over conventional responses to crises, the former secretary of state reacted with utter disbelief to what he termed "defense on the cheap."

In the 1960s Acheson returned to public life as the head of NATO task forces, special envoy, diplomatic trouble-shooter, and foreign policy advisor for Presidents John F. Kennedy and Lyndon B. Johnson. Acheson was noted for his hawkish advice to Kennedy during the Cuban Missile Crisis of 1962. Acheson died of a heart attack on October 12, 1971, in Sandy Spring, Maryland.

Caryn E. Neumann

See also: National Security Council Report NSC-68; North Atlantic Treaty Organization (NATO)

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ARMED SERVICES COMMITTEES, U.S. SENATE/HOUSE

The U. S. Senate and House of Representatives each maintains permanent committees designated with the responsibility of legislative oversight of the Department of Defense and related agencies. Each also oversees military research and development, benefits for armed forces members, conscription of citizens for military service, and aspects of the Department of Energy pertaining to strategic nuclear issues, such as the development of nuclear weapons. These committees are among the most powerful legislative groups in the U.S. Congress, and as such are highly coveted Congressional appointments.

The Senate created a Committee on Military Affairs and a separate Committee on Naval Affairs in 1816, during the immediate aftermath of the War of 1812 (1812–1815). The terrible initial military performance during the conflict, which presaged the almost complete collapse of the U.S. government in 1814, caused Senate leaders to desire a greater role in military decision making during peacetime. In 1822 the House of Representatives followed suit, creating two identically named standing committees, with particular attention given to the financial aspects of military preparedness. In 1835 the House formed the Committee on the Militia, an organization that remained in place until it formally merged with the Committee on Military Affairs in 1911.

The Military Affairs and Naval Affairs committees played an influential role in peacetime military policy and in shaping the strategy and operations of American conflicts. During the American Civil War (1861–1865), President Abraham Lincoln frequently consulted legislators from both houses of Congress regarding the political aspects of his military decisions as commander in chief. Members of the legislature often proposed specific individuals for military commands, and Lincoln's need for the support of powerful Senators and Congressmen



From left, Chairman of the Joint Chiefs of Staff Marine Gen. Peter Pace, Secretary of Defense Robert M. Gates, and Under Secretary of Defense (Comptroller) and Chief Financial Officer Tina W. Jonas testify at the Senate Armed Services Committee hearing about the 2008 Defense Department budget at the Hart Senate Office Building in Washington, D.C., Feb. 7, 2007. (U.S. Department of Defense)

led to the creation of an entire class of military officers—the so-called political generals. These men often became flag officers due to their ability to sway political decisions; many had previously served in the House or the Senate. Few had significant military experience, fewer still performed admirably in command of the battlefield. However, some—such as Major Generals Benjamin Butler and Nathaniel Banks—fulfilled important administrative roles. In the aftermath of the war, thousands of veterans petitioned the government, requesting a military pension for their services. The Committee on Military Affairs oversaw the pension process, seeking to eliminate false claims while rewarding legitimate applications.

The committees played a vital role in the preparedness movements prior to American involvement in World War I and World War II. As Europe became embroiled in World War I (1914–1918), the United States remained aloof, isolationist, and neutral in policy if not always in practice. Despite lodging protests and threatening retaliation against Germany for the sinking of merchant vessels and passenger liners in the Atlantic in 1915 and 1916, the United States did not declare war against the Central Powers until 1917, after the resumption of unlimited submarine warfare put American citizens directly in harm's way. To prepare for the possibility of entering the war, the Senate and House authorized the largest peacetime buildup of American military personnel in history through the National Defense Act of 1916. Soon after American entry, the Senate and House passed the Selective Service Act of 1917. Such actions sped the arrival of American troops to European battlefields, by the spring of 1918, approximately 250,000 American soldiers reached France each month from training centers throughout the United States. When the war ended in November 1918, a further two million troops awaited transportation across the Atlantic.

In the decades following World War I, members of Congress questioned why the United States had entered the conflict. Despite the overwhelming vote for a declaration of war in 1917, when the Senate had voted 82–6 and the House voted 373–50 in favor of belligerency, some felt that the United States had been tricked into joining the conflict. Members of the Military Affairs and Naval Affairs Committees investigated allegations that the legislature had been forced to act by the machinations of the "merchants of death," industrial corporations that produced munitions and could expect millions of dollars in government contracts if the United States entered the war. According to the Nye Commission (1934–1936), chaired by Senator Gerald Nye of South Dakota, these corporations partnered with financial institutions that had lent the governments of Britain and France, and to a lesser extent, Russia and Italy, enormous sums of money for the purchase of military supplies. If the Allies lost the war, they would almost certainly default upon the loans, potentially triggering the collapse of the American banking industry. Accordingly, the U.S. government intervened in the war at least in part to protect the American economy.

The findings of the Nye Commission relied upon suppositions, assertions, and a lack of opposition within the legislature. They were as much a product of the Great Depression, and a feeling that the United States had expended vast amounts of blood and treasure, only to be ignored by the Allies at the treaty table, as they were a finding of fact. However, the perception

that the United States had entered a war in which it had no stake, for the benefit of greedy, immoral capitalists, found traction in Congress, which in 1935 passed the First Neutrality Act. This act sought to prevent a repeat of past errors by prohibiting the sale of war materials to either side of a conflict. Such a prohibition would allow the United States to remain neutral in deeds as well as in words. Unfortunately, it did not account for wars in which the United States had an interest, if not a strong enough position to enter the conflict. Subsequent Neutrality Acts in 1936 and 1937 forbade the extension of credit and the sale of any goods to belligerents. An exception to the policy allowed the president to authorize the sale of goods on a cash-and-carry basis. It was expected that this would permit the tacit support of one side in a likely European conflict, and allowed the lucrative sale of munitions without placing American lives at risk. Because the British Royal Navy maintained the largest surface fleet in the world, this amounted to open support of Britain in any renewed conflict with Germany.

As in the years prior to involvement in World War I, American military planners proposed an expansion of the military establishment during the opening years of World War II. After the Japanese attack upon Pearl Harbor on December 7, 1941, the Senate and House remained in an advisory role, providing financial support and oversight while largely deferring to the wartime leadership of President Franklin D. Roosevelt as commander-in-chief. The sheer size and scope of American involvement in the war demonstrated the unwieldy nature of the legislative committee system.

The Legislative Reorganization Act of 1946 sought to streamline the Congressional system, while reasserting the legislative oversight role regarding the Executive Branch, including the military. It merged the Committees of Military Affairs and Naval Affairs into a single Armed Services Committee with responsibility for all branches of military service. This merge foreshadowed the combination of the War Department and Navy Department into a single National Military Establishment, soon renamed the Department of Defense, through the National Security Act of 1947. The same law created an independent U.S. Air Force; the Joint Chiefs of Staff; the National Security Council; and the Central Intelligence Agency; all permanent forms of organizations created during World War II.

Since their inception, the Armed Services committees have overseen the Korean War (1950–1953); the Vietnam War (1963–1973); the invasions of Grenada (1983) and Panama (1989); the Persian Gulf War (1990–1991); incursions into Somalia(1992–1993); Bosnia (1995); and Kosovo (1999); and the Global War on Terror (2001–), including invasions of Afghanistan (2001) and Iraq (2003). In every case, leading members of the committees received briefings upon military operations prior to commencement, allowing oversight and advice, as well as occasional interference. There has always been some degree of dispute over the relative authority of the Legislative and Executive Branches in wartime. The United States has not declared war since 1941, a fact which has greatly complicated the status of the legislature and the presidency. While the Constitution clearly empowers the president as commander-in-chief, there are limits upon presidential authority during wartime, and such limits are certainly more constraining during undeclared

wars. Often, the constraints are related to military funding—the House cut off funding for the Vietnam War in 1973, for example, forcing President Richard M. Nixon to move aggressively to the peace table. Similar threats have been presented in subsequent conflicts, most notably the War on Terror.

The Armed Services Committees have varied greatly in size and composition in the past six decades. They are normally chaired by a member of the majority party, with committee membership roughly proportionate to the makeup of the legislature. In the 111th Congress, the Senate Armed Services Committee, chaired by Carl Levin (D-MI), includes fourteen Democrats, eleven Republicans, and one Independent. The House Committee, chaired by Ike Skelton (D-MO), has 36 Democrats and 25 Republicans.

The large size of each committee requires that members serve on subcommittees that address various responsibilities of oversight. The full group is simply too unwieldy to deliberate all of the matters pertaining to a military establishment with more than two million members and an annual budget of over $400 billion. In the Senate the six subcommittees are: Airland; Emerging Threats and Capabilities; Personnel; Readiness and Management Support; Seapower; and Strategic Forces. The House maintains seven subcommittees, specifically Air and Land Forces; Military Personnel; Oversight and Investigations; Readiness; Seapower and Expeditionary Forces; Strategic Forces; and Terrorism and Unconventional Threats. In each case two of the subgroups reflect the pre-World War II heritage of the committee as a whole, with ground and aerial forces lumped together and naval assets, including the U.S. Marine Corps, kept separate. The personnel and readiness subcommittees are a result of the Cold War (1945–1991), when Congress attempted to prepare for a conflict with the Soviet Union, a status quo that prohibited a return to the traditionally tiny peacetime military. Likewise, the Strategic Forces subcommittees arose during the Cold War to provide legislative control over the nation's nuclear arsenal. In the post-Cold War environment, each branch of the legislature has a group dedicated to analyzing and anticipating the modern military threats. Only the House maintains a separate oversight subcommittee, most Senate investigations of military policies and practices involve the creation of an ad hoc subcommittee or an investigative inquiry conducted by the committee as a whole. The Armed Services Committees also hold hearings on the conduct of American wars. Such hearings may be public or private, but all of them serve to demonstrate the continuing role of the Armed Services Committees in the creation and implementation of American military policy.

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See also: CIA; Cold War; Department of Defense; Joint Chiefs of Staff; Korean War; National Security Act (1947); Nixon, Richard; Persian Gulf War I; Persian Gulf War II; Roosevelt, Franklin; U.S. Air Force, Army, Marine Corps, and Navy; USSR; Vietnam War; Weapons, Nuclear; World War I; World War II

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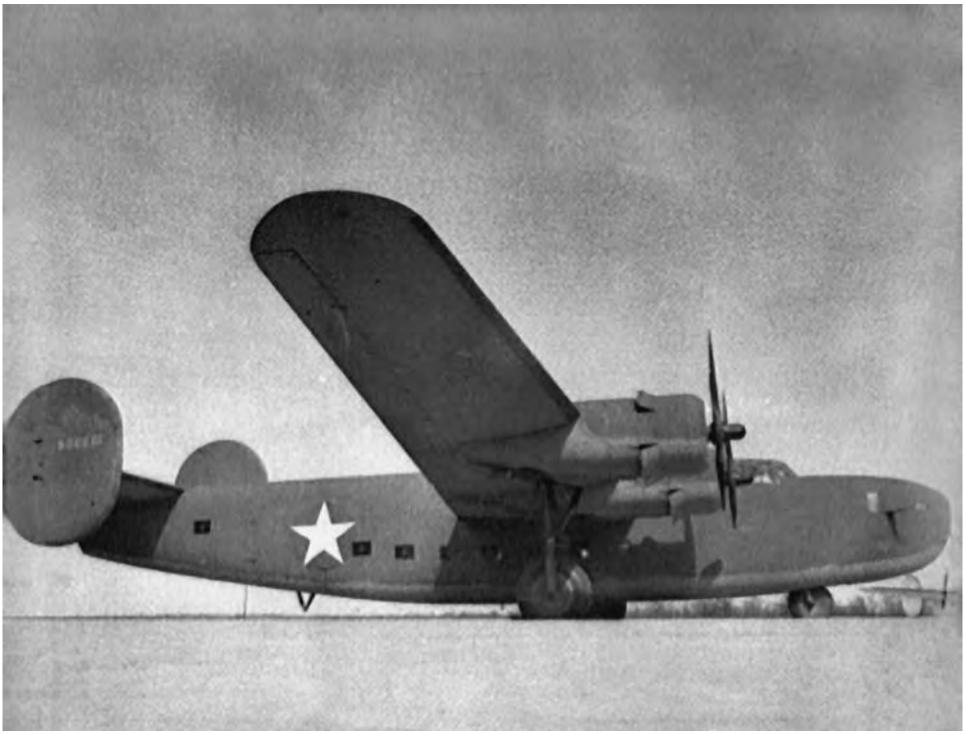
ARMS MANUFACTURERS/ DEFENSE INDUSTRY CONTRACTORS

Arms manufacturers and defense industry contractors supply weapons, components, software, consultation, and other services to the U.S. military. Many of the corporations involved in the defense industry are extremely diverse, pursuing a wide variety of consumer initiatives in addition to defense contracts. The largest producers have become extremely dependent upon the federal government, which in turn cannot supply the military without these largest corporations. The current state of defense procurement in the United States differs greatly from practices prior to World War II and quite significantly from the Cold War era.

From its inception, the United States has relied upon a small military force in peacetime, augmented by rapidly mobilized volunteers and conscripts during times of war. In the early years of the nation's existence, the rapid mobilization caused great difficulties in procuring sufficient equipment for military units. Although the federal government maintained and operated two arsenals (Springfield, Massachusetts, and Harper's Ferry, Virginia), these entities relied upon artisan systems of manufacture, which produced high-quality firearms in a time-consuming manner. The products of the federal arsenals were unique; if a weapon malfunctioned in the field, it required a skilled artisan to repair it. However, over the first three decades of the 19th century, the federal arsenals converted to the "American System" of manufactures, relying upon interchangeable parts to ensure uniform standards for military equipment.

Despite the incorporation of newer and more effective manufacturing techniques, the federal arsenals still could not supply sufficient weaponry to meet the needs of the American Civil War. In that conflict the federal government turned to private suppliers, such as the Colt Firearms Company, the Remington Arms Company, and the Winchester Repeating Firearms Company. Each obtained contracts to provide firearms to the federal government according to the specifications of the federal arsenal designs. In addition, each company offered weaponry designed by corporate employees in the hope that the federal government would adopt proprietary technology and purchase large quantities of weapons from the company's catalog. After the war's end, each company returned to supplying weapons for the civilian hunting and self-defense market.

The Springfield Armory remained in operation until 1968, testing and producing new firearms and other weapons for the military. However, with the rapid improvements in military technology at the turn of the 20th century, the federal arsenal simply could not supply the military in any major war effort. Ample



The B-24 Liberator bomber, designated C-87 when used as a heavy transport, could carry more than six tons of bombs and had a range of 3,000 miles, allowing it to penetrate deep into enemy territory. (Library of Congress)

evidence came in 1917 when the U.S. entry into World War I demonstrated the need for civilian arms manufacturers. Although Springfield managed to produce almost 300,000 rifles during American participation in the war, even with preexisting stockpiles, this number was insufficient to arm the two million American soldiers shipped to Europe. Heavy weapons and vehicles remained in short supply for the entire conflict; almost no American-built tanks or airplanes reached the Western Front prior to the armistice. However, some American corporations did convert to wartime manufacturing, particularly companies that created dual-usage products, such as the chemical industry. In particular, the DuPont Company manufactured chemical weapons and explosives utilized by all of the allied powers on the Western Front.

During the interwar period, companies that had converted to wartime production returned to their civilian business practices, sparking a massive boom in the American economy in the immediate postwar period. Springfield again became a center of innovation and arms production, which provided specifications for weapons that private companies could supply to American military forces during World War II. America entered this global conflict completely unprepared, with a small, undersupplied military.

To supply the massive American field armies of World War II, private corporations converted their production lines to

wartime needs. The plans for such wartime conversion were overseen by the War Production Board, which allocated resource priorities to scarce natural resources such as fuel, iron ore, rubber, and plastics. In order to qualify for necessary materials, corporations lobbied for government production contracts and began producing war materials. Virtually any factory relying upon the assembly line system could be converted to wartime production. For example, Ford Motor Company, General Motors, and John Deere Company all produced variants of the same tank, the M4 *Sherman,* which had been designed by the U.S. Army Ordnance Department. Although the design originated with a government agency, each producer had to make certain modifications to suit their manufacturing capability. As such, multiple versions of the tank were in production simultaneously during World War II. These variants had little effect upon the tank's utility; they proved fairly effective as medium tanks on the battlefields of North Africa, Europe, and the Pacific. Due to the massive manufacturing capability of American industry, more than 48,000 copies of the *Sherman* rolled off the assembly lines from 1941 to 1945.

In addition to modifying existing assembly lines, government financing allowed the construction of massive factories to allow the specialized production of complicated war implements, such as the Willow Run site, constructed by Ford Motor Company for the production of B-24 *Liberator* bomber aircraft. The *Liberator* was also produced by Consolidated Aircraft Company, Douglas Aircraft Company, and North American Aviation, all of which constructed new factories for production. Like the *Sherman,* each B-24 varied slightly according to where it was manufactured. However, with the unit cost of each bomber at approximately $300,000, corporations had an obvious motivation beyond patriotism to seek contracts for production of the aircraft, and eventually more than 18,000 units were produced during the war.

By far the largest defense project of the war was the effort to produce the atomic bomb. The Manhattan Project, which eventually resulted in the production of three atomic weapons, lasted almost four years and cost nearly $2 billion. The project employed 130,000 workers at 30 primary production sites, most of whom remained completely ignorant of the goal of their efforts. The primary plutonium production location, the Hanford Site in Washington, was designed and constructed by the DuPont Company, under contract from the U.S. Army Corps of Engineers.

As in previous conflicts, the end of World War II included the reconversion of private factories back to civilian production. However, unlike previous conflicts, the postwar era did not include an American return to prewar military levels. Cold War threats necessitated the maintenance of a significant conventional military, but the absence of an open conflict and the demobilization of most of the military personnel of the war presented a thorny political problem. Government production facilities were both expensive to maintain and might be inadequate to the rapid production needs of a major conflict with the Soviet Union. Also, the new, sophisticated equipment of the American military presented a much greater manufacturing challenge than previous production lines, particularly for a company attempting wartime conversion. At the same time, the federal

government had undertaken massive deficit spending during the war, and American consumers longed to return to a peacetime economy filled with luxury goods. The government decision was to maintain strategic partnerships with major defense corporations, particularly aerospace companies.

The post-World War II defense industry spun off many high technology industries, which provided a significant trade advantage to the United States by establishing a broad base of technological expertise within the nation. This reliance upon high technology has also created a continual demand for scientists and engineers, resulting in a corresponding increase in the number of undergraduate and graduate programs in the hard sciences and engineering fields. These programs have drawn upon federal grants for research, creating a symbiotic relationship between the military, industry, and the higher education system.

Given the key role played by airpower in World War II, and the destruction of Hiroshima and Nagasaki by air-delivered atomic weapons in 1945, it is unsurprising that the American military would place its major emphasis upon the development and acquisition of strategic aircraft. This decision was augmented by the creation of a separate Air Force in 1947, and by the New Look approach to defense under the administration of President Dwight D. Eisenhower. Eisenhower's primary defense focus was on the creation of a large strategic bomber fleet and the nuclear weapons necessary to respond to enemy provocations through a policy of Massive Retaliation.

The production of strategic military aircraft is simply too complex to rely upon wartime conversion. The unit cost of each airplane is high enough to justify dedicated assembly lines, and the production time is long enough to undertake continuous procurement of aircraft, particularly if the factories are not operated at maximum capacity. The same is true for other complex items of military hardware, such as armored vehicles, missiles, and communications systems, all of which are produced by multiple defense contractors according to a shared schematic. The designs of new weapons are also often produced by private companies, in response to Department of Defense requirements that are offered prior to design competitions. Winning designs win priority in production contracts for the originating company, although the designers may be required to license their designs to other producers.

Throughout the Cold War, American weapons systems, particularly aircraft and related implements, proved superior to Soviet equipment. Although certain Soviet models proved surprisingly sophisticated, Soviet manufacturing techniques simply did not allow the high quality of manufacture common to American systems. This made American weapons systems very desirable for foreign military powers. By the end of the Cold War, the United States had emerged as the largest international arms supplier. Ongoing weapons procurement programs have also created a large amount of political capital in the United States. Many employees of defense contractors are members of powerful labor unions, which represent a significant bloc of votes, particularly in Western and Midwestern states. The amount of money allocated to the defense budget also offers new ways to reward political constituents, with legislators pushing for contracts to be negotiated for corporations within their districts. Defense

workers, as a whole, are well-paid by industry standards, making defense contractors very desirable for state and local political entities. To secure an influx of new jobs and the resulting income tax revenue, many states and municipalities have offered massive tax incentives and resources to entice defense companies to construct new facilities for defense production.

In the 1980s major defense contractors were beset by allegations of profit-padding through inflated or unexplained bills. Many of the largest corporations were also accused of influence-peddling, bribery, and defrauding the government. A lack of government oversight, coupled with a massive increase in the U.S. defense budget, made such practices possible. The end of the Cold War in 1991 caused American procurement programs to be considerably scaled back, but also triggered a wave of defense corporation mergers in the 1990s. Between mergers and acquisitions of smaller institutions, several immense defense contractors emerged by the end of the decade to dominate defense research and production in the 21st century. Despite the lack of a significant rival in world power, the American military services continued to procure new weapon systems that had been designed to counter the Soviet threat. Even though many of the weapons programs were scaled back or delayed, the American military services demonstrated a propensity to protect new technology over personnel, moving to reduce manpower levels while continuing the purchase of weaponry that no longer had a mission. Having spent the funds necessary to develop new systems, the services proved unwilling to cancel weapons systems, even in the face of strong Congressional opposition.

The largest current defense contractor specializing in military hardware in the United States is the Lockheed Martin Corporation, a conglomerate that formed in 1995, bringing together the Lockheed Corporation, Martin Marietta Corporation, and elements of General Electric and General Dynamics. This massive company, which originally specialized in aviation, now produces aircraft, missiles, radar systems, biometric scanning equipment, communications devices, training simulators, and a virtually unlimited array of other military equipment. In 1997 Lockheed Martin announced a planned merger with Northrop Grumman, another of the largest defense corporations in the United States. This $11 billion plan provoked the U.S. Department of Justice to block the move, which would have created the largest weapons manufacturing corporation in history and made the U.S. military almost entirely dependent upon a single entity. By far the most lucrative current contract for Lockheed Martin is the production of F-22 *Raptor* aircraft for the United States Air Force. The total contract for production of this extremely advanced fighter and attack airplane is over $65 billion, the majority of which goes to Lockheed Martin, which produces components and handles final assembly of the aircraft. With a unit cost of almost $140 million, the F-22 is the most expensive fighter aircraft in history.

The Boeing Company, which like Lockheed began solely as a manufacturer of aircraft, is also a major producer of guided missiles, intercontinental ballistic missiles, military aircraft, and space vehicles. Like other defense contractors, Boeing has aggressively acquired smaller competitors, including the Vertol Corporation, a leading manufacturer of helicopters, in 1960, and

Rockwell Aerospace and Defense in 1996. In 1997 Boeing and McDonnell Douglas concluded a $13.3 billion merger, creating the largest aerospace company in the world. Currently, Boeing is the lead developer of the Airborne Laser system, designed to locate and destroy ballistic missiles while in the boost phase before they can become a threat to American targets. In addition to contributing systems to the F-22, Boeing also served as the primary manufacturer of the F-15 *Eagle* and F/A-18 *Hornet* aircraft, with nearly 3,000 aircraft produced at an average cost of more than $30 million.

Northrop Grumman, like Lockheed Martin, is the product of a major merger. In 1994 Northrop Corporation acquired Grumman Corporation, consolidating two major defense contractors into a single company. In the same year, the newly merged firm purchased Vought Aircraft, and two years later it purchased Westinghouse Electric Corporation's defense and electronics business, making it the third largest defense corporation in the United States. It specializes in the design and manufacture of aircraft, electronics, aerial management systems, and space systems. The most expensive product created by Northrop Grumman is the B-2 *Spirit* bomber, with a unit cost of over $700 million per aircraft. Once the costs for repair parts, maintenance, research, and development are included, the B-2 bomber cost more than $2 billion per airframe—a tremendous expenditure considering that it was envisioned as an intercontinental bomber designed for delivery of nuclear bombs through heavy antiaircraft defenses. When the Cold War ended, the mission of the *Spirit* also disappeared, causing Congress to scale back orders for the aircraft, a move which substantially drove up the per-unit cost.

The largest defense contractor that did not originate as an aerospace producer, the Raytheon Company, specializes in electronics and communications equipment. In 1990 Raytheon acquired E-Systems, beginning a decade of massive growth. In 1996 Raytheon bought Chrysler Technologies Airborne Systems, and less than a year later, Texas Instruments Defense Systems and Electronics. Also in 1997 Raytheon merged with Hughes Aircraft, creating a $21 billion company that included elements of General Dynamics and Phillips Magnavox. Raytheon served as the lead developer and producer of the M104 Patriot Missile System, an antiaircraft missile that has been converted to an antiballistic missile defense system. More than 8,000 Patriot missiles have been sold to the U.S. military, with a unit cost of approximately $2 million. Raytheon is currently testing a powered exoskeleton designed to enhance the strength and stamina of the user without hindering fine muscle motor controls.

The General Dynamics Corporation, formerly the Electric Boat Company, is one of the most diverse defense contractors, reliant upon the federal government and foreign militaries for almost all of its income. General Dynamics, like virtually every other major defense contractor, acquired a number of smaller businesses during the 1990s, including Bath Iron Works in 1995, and Defense Systems, Armaments Systems, Advanced Technology Systems, and Computing Devices International, all in 1997. The weapon system most closely associated with General Dynamics is the M1 *Abrams* Main Battle Tank. Originally developed in the 1970s to counter the mechanized forces of the Soviet Union, the *Abrams*

has remained the mainstay of U.S. land forces for three decades. General Dynamics produced over 8,000 for the U.S. military alone, with thousands more built for foreign armies, most notably Australia, Egypt, and Kuwait. The most recent variant, the M1A2, in production since 1992, has a unit cost of $4.5 million. Older versions of the tank have been upgraded to the M1A2 package without requiring complete replacement of the vehicle. The total value of the M1 contract for General Dynamics has exceeded $30 billion. General Dynamics is also the supplier of the IAV *Stryker* armored vehicle, the successor to the M2 *Bradley* Fighting Vehicle.

Defense contracting remains an immense sector of American industry. In 2008 worldwide military expenditures topped $1 trillion, half of which was spent in the United States. Of that total, approximately $300 billion went to weapons procurement, including $30 billion in international arms sales. The United States is the largest international weapons supplier, accounting for approximately 36 percent of the world's arms sales in 2008. While the rate of mergers has slowed greatly since the 1990s, the field is still highly competitive for lucrative development and production contracts. The five largest defense contractors collectively employ more than 600,000 workers, and sold more than $150 billion in hardware to the U.S. military in 2008.

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See also: Boeing Company; Cold War; Defense Industry Lobbyists; Department of Defense; Eisenhower, Dwight David; General Dynamics; Grumman; Lockheed; Manhattan Project; McDonnell-Douglas; New Look Defense Policy; United States Air Force; United States Army; War Production Board; Weapons, Air; Weapons, Land; Weapons, Nuclear; Weapons, Sea; World War I; World War II

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ARMS RACE

In August 1945 during the final days of World War II, the United States dropped two atomic bombs on the Japanese cities of Hiroshima and Nagasaki. The first nuclear weapons to be deployed in wartime, the bombs heralded the coming

of the nuclear age and the Cold War, as the United States and the Soviet Union would try to outmaneuver one another in a nuclear arms race after World War II ended.

The United States and the Soviet Union doggedly pursued this competition of developing bigger and more nuclear weapons from 1945 until the collapse of the Soviet Union in 1991. Even with the Cold War over, though, an arms race continues, as other nations seek to develop nuclear weapons of their own. The arms race and the efforts to control the proliferation of nuclear weapons define much of post-World War II international history.

Throughout World War II, the United States mounted a concerted effort to develop the first nuclear weapons in an attempt to preempt the Germans, who were developing their own nuclear capabilities. Bringing together the brightest Allied scientists, the Manhattan Project, as the U.S. program to build atomic weapons was known, successfully constructed a nuclear bomb and tested it in the New Mexico desert on July 16, 1945. Within a month, the U.S. military conducted the Hiroshima and Nagasaki bombings, inflicting massive casualties and nearly destroying the two towns. Faced with the threat of complete destruction, the Japanese government surrendered within a week, thus bringing World War II to an end.

Almost immediately after the restoration of peace, a new conflict emerged between the United States and the Soviet Union. Although the two powers had been allies during the war, they viewed each other with deep distrust, believing that their political ideologies of capitalism and communism inherently conflicted. Both sides, though, were horrified by the destruction wrought by the atomic weapons the United States had developed, leading to a "cold war," as actual fighting never broke out between them. Instead, the Cold War was fought through a massive arms race to develop nuclear weapons and delicate diplomatic negotiations.

In America, President Harry Truman realized that he faced an entirely new set of challenges than his predecessor, President Franklin D. Roosevelt, had. Never before had a country possessed a weapon of such destructive potential as the atomic bomb, an advantage that Truman intended to keep exclusively for the Americans. Although some of the scientists who had worked on the Manhattan Project, like Leo Szilard, believed that nuclear technology should be openly discussed and developed in the world, it remained a closely guarded state secret.

The Soviet Union resented the secrecy surrounding U.S. nuclear technology, while the United States believed the Soviet Union had reneged on its diplomatic agreements concerning postwar Europe. In this atmosphere of mutual recrimination, Truman pursued a policy that isolated the Soviets from America's nuclear program. Determined to challenge the United States on the world stage, the Soviet Union pooled its best scientists, who created their own atomic bomb by August 1949, well before American experts predicted the Soviets would have such capability.

The following year Truman authorized a program to develop a more destructive hydrogen bomb to one-up the Soviets. A number of well-known scientists vocally opposed the development of the far-more powerful H-bomb, as it was known, including Albert Einstein and J. Robert Oppenheimer. Indeed, an advisory report

by the Atomic Energy Commission (AEC) concluded the United States should not develop the H-bomb. Some of Truman's own advisers, most notably George F. Kennan, also disliked the prospect of thermonuclear weapons. Many of these opponents to the H-bomb hoped to halt the further development of nuclear weapons by both sides, proposing a nuclear freeze. Truman maintained, however, that he was forced to support the H-bomb program because of the threat that the Soviets would develop one first. The commitment to meeting and exceeding the Soviet Union's nuclear capabilities set the pattern for the coming decades.

On another front of the arms race, political and military advisers agreed on a policy of massive military build-up, as outlined in National Security Council document 68, known simply as NSC-68. This policy called for vast increases in defense spending to match the forces that the Soviet Union could muster. NSC-68 established a policy that meant massive federal subsidies would go to defense industries and fund a proliferation of nuclear weapons, thus contributing substantially to the arms race. By 1950 the U.S. arsenal already included more than 300 nuclear weapons.

Clearly, the arms race had begun in full force by 1952, when Dwight D. Eisenhower was elected to the American presidency. Eisenhower's role in the arms race was paradoxical, reflecting the irony of the arms race, as government officials simultaneously feared the arms race, advanced it, and worked to limit it.

As president, Eisenhower employed several foreign policy strategies. First, formulated by Secretary of State John Foster Dulles, was massive retaliation, a strategy that promised to deter the Soviet Union or other potential enemies with the promise of swift and massive retaliation to any attack on American interests, including the use of nuclear weapons. Second, U.S. foreign policy advisers and the military establishment also created the New Look plan, a budgetary move to make U.S. armed forces more efficient financially. Eisenhower's administration reduced defense spending for ground-based forces and invested heavily in nuclear weapons.

During the 1950s politicians and the media raised great concerns over the missile gap—the idea that the Soviet Union's nuclear missile capabilities far exceeded that of the United States. Credence was given to this idea by the Soviet Union's successful launching of the satellite Sputnik into space in 1957, an indication that the Soviet effort to conquer space had outpaced the U.S. space program.

In reality no gap existed, but the fear of such a gap led to the construction of hundreds of additional missiles. By the end of Eisenhower's term in office in 1960, the U.S. nuclear arsenal included 30,000 megatons of nuclear capability, roughly the equivalent of 10 tons of TNT for every human being on the planet. Soviet capabilities at this time are unknown but were most likely also significant.

In addition, other major world powers developed their own nuclear capabilities during this period, most notably the French and the Chinese. Throughout discussions of possibly limiting the arms race in future years, the French and the Chinese proved particularly recalcitrant, with both nations determined to compete in the arms race to their fullest capabilities.

Despite these ominous programs, Eisenhower also pursued policies that he

and his advisers hoped would bring more peaceful coexistence to the world and a halt to the frightening nuclear proliferation. In 1955, world-renowned scientist Einstein and philosopher Bertram Russell published the Einstein-Russell Appeal in the New York Times, calling on world leaders to end the arms race. The well-publicized appeal encouraged others to begin speaking out publicly against nuclear proliferation.

That same year Eisenhower also proposed the Open Skies policy at a summit meeting with the Soviets in Geneva, Switzerland. The president offered to exchange military blueprints with the Soviets and allow regular aerial inspections of military bases in both countries. The Soviets rejected the program, however, suspicious of U.S. intentions. Nevertheless, Eisenhower had opened the door for a discussion of limiting the arms race.

In 1957 the first Pugwash Conferences on Science and World Affairs occurred in Pugwash, Nova Scotia, Canada. It was the first opportunity for scientists from the United States and its allies to meet with scientists from the Soviet Union and its allies. Although both sides were extremely careful about sharing information, the conference marked an important step in opening lines of communication within the scientific community.

Shortly thereafter, Eisenhower proposed the Atoms for Peace program, which suggested the establishment of an international organization under the auspices of the United Nations to coordinate the use of nuclear materials for such peaceful purposes as energy or medicine. An important symbolic gesture on Eisenhower's part, the program did nothing to reduce the arms race.

By the late 1950s, however, some progress was being made to at least slow the arms race. The United States, the Soviet Union, and other nuclear nations met and agreed to an atmospheric testing moratorium that lasted three years beginning in 1958. In the final months of Eisenhower's presidency, he worked to bring forth a limited test ban treaty with the Soviet Union, which was to have been discussed in greater detail at a Paris summit with Soviet premier Nikita Khrushchev.

Unfortunately, the Soviets shot down a U-2 reconnaissance plane and captured the pilot, Francis Gary Powers, shortly before the summit met, seriously embarrassing Eisenhower, who had forcefully maintained that the United States did not conduct such spying missions. This ill-timed development ended the summit and any chances for a test ban treaty at that time.

Ironically, when Eisenhower left office in January 1961, he spoke to the American people in his farewell address of a growing military-industrial complex in the United States that accepted the worst-case scenario about U.S.-Soviet relations and sanctioned any cost to build a strong nuclear arsenal. Perhaps more than any other president, Eisenhower demonstrated the paradox of the arms race.

In January 1961 John F. Kennedy came to the American presidency, promoting himself as a cold warrior. In formulating a flexible response strategy for U.S. armed forces, Kennedy increased American weaponry by 150 percent and doubled its nuclear mega tonnage.

Although the three-year test ban ended in August 1961, the Americans, the Soviets, and the British agreed to the Limited Test Ban Treaty on July 25,

1963, ending all atmospheric, underwater, or outer space testing of nuclear weapons. Unfortunately, the treaty merely drove nuclear testing underground, but it institutionalized collaboration between the two superpowers. By 1980, 125 nations had signed the limited test ban.

President Lyndon B. Johnson more or less maintained Kennedy's nuclear diplomacy. Secretary of Defense Robert McNamara pursued a policy of mutually assured destruction, which promised that a nuclear attack by one of the superpowers would lead to the destruction of the other. It offered a strong deterrent, which had always been a key inducement to nuclear weapons development. Nevertheless, slowly over the course of the Johnson tenure, the United States slowed some of its nuclear production and worked to curb nuclear proliferation.

As other nations around the world increasingly added their voices to the call to halt nuclear proliferation, the United States and the Soviet Union worked to find some sort of accommodation. The most significant effort was the Strategic Arms Limitation Treaty (1972), known as SALT I. President Richard Nixon met with Soviet premier Leonid Brezhnev in Moscow and signed an agreement that provided for a severe limitation on the placement of antiballistic missiles and a freeze on the deployment of intercontinental ballistic missiles by each nation.

In 1973 when Brezhnev visited Washington, D.C., the leaders agreed never to use nuclear weapons offensively and arranged for a second treaty, the Strategic Arms Limitation Treaty II (1979), called SALT II. This period of relaxing tensions was known as détente. Efforts on behalf of SALT II continued through the presidencies of both Gerald Ford and Jimmy Carter. On June 18, 1979, Carter and Brezhnev signed the SALT II treaty in Vienna. SALT II would have set a limit on long-range missiles that each country could possess and provided for a decrease in these missiles by 1981. Before the Senate could ratify the new treaty, however, the Soviets invaded Afghanistan in December 1979, an act of aggression that heightened U.S. fears in the Cold War.

Although Congress had been poised to act favorably on the SALT II treaty when Carter and Brezhnev signed it, the invasion compelled Carter to admit new reservations regarding Soviet intentions. The mood of the Senate changed as well, and it opted to suspend consideration of the treaty. Shortly thereafter, in an almost complete turnabout of events, Congress added new funds to the military budget. The talk was no longer about détente, but rather about a renewed Cold War.

Carter, like the presidents before him, tried to balance his desire for peace and an end of the arms race with perceived national defense needs. As an idealist, he publicly admitted that he would like to eliminate nuclear weapons and told the United Nations he would reduce the U.S. nuclear arsenal by 50 percent if the Soviets agreed to do likewise. However, he ordered the development of a neutron bomb and sold nuclear materials to nations like India, helping to proliferate nuclear capabilities.

When Ronald Reagan assumed the presidency in 1981, he did so suspicious of arms reduction agreements and fully committed to the arms race. Ironically, Reagan and the new Soviet premier Mikhail Gorbachev did much to end the arms race. Initially, Reagan adopted a

hostile posture toward the Soviet Union, describing it as the "Evil Empire." He proposed the Strategic Defense Initiative (SDI), dubbed Star Wars by the press, to provide the United States with a protective shield from nuclear attack as part of the largest peacetime military buildup in U.S. history. At the same time, though, Reagan's greatest pride as president was to have started down the road toward nuclear disarmament through one-on-one diplomacy with Gorbachev at a series of summit meetings leading to nuclear disarmament.

Reagan's supporters claimed that his vast defense expenditures and determination to battle communist aggression everywhere brought the Soviet Union to its knees, for the Soviet Union collapsed economically in the late 1980s and politically in 1991, exhausted by the effort to keep up with the United States. With the demise of the Soviet Union, the effective end of the Cold War promised an end to the arms race that so many political leaders, scientists, and citizen activists around the world like Helen Caldicott and Randall Forsberg had hoped and worked for over so many years.

However, although the end of the Cold War between the Soviet Union and the United States seemed to promise relief in the arms race, concern about nuclear proliferation continues into the 21st century. In the 1990s many Western powers have worried about the nuclear capabilities and intentions of India, North Korea, Iraq, and Iran, as well as the former Soviet republics, some of which control segments of the old Soviet arsenal. Many perceive these nuclear states as more unstable and thus more dangerous than the old Soviet Union. Thus, the existence of a vast nuclear arsenal throughout the world means that the threat of nuclear attacks remains and may in fact be greater than ever.

Adam Soward

See also: Carter, James; Cold War; Dulles, John Foster; Eisenhower, Dwight; Flexible Response; Ford, Gerald; Johnson, Lyndon; Kennan, George; Kennedy, John; Manhattan Project; Massive Retaliation; McNamara, Robert; Missile Gap; Mutually Assured Destruction; New Look; NSC-68; Reagan, Ronald; Sputnik; Strategic Defense Initiative; Truman, Harry; USSR; Weapons, Nuclear

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ARNOLD, HENRY HARLEY "HAP" (1886–1950)

U.S. Army Air Forces (USAAF) general who led the USAAF and its predecessor, the Army Air Corps, throughout the war. Born on June 25, 1886, in Gladwyne, Pennsylvania, Henry Harley "Hap" Arnold graduated from the U.S. Military Academy in 1907 and was commissioned in the infantry. He transferred into the aeronautical division of the Signal Corps in 1911 and received his pilot's



General Henry Harley "Hap" Arnold sits in his office at the Munitions Building in Washington, D.C. Arnold was a pilot, commander of the U.S. Army Air Corps from 1938 to 1941, commander of the U.S. Army Air Forces from 1941 until 1945, and the first general of the Air Force in 1949. He is the only airman to achieve five-star rank. (Library of Congress)

certificate after training with Orville Wright. In 1912 Arnold set a world altitude record and won the first Mackay Trophy for aviation.

During World War I, Arnold served on the U.S. Army staff in Washington, D.C., rising to the rank of colonel and overseeing all aviation training. After the war, Arnold reverted to his permanent rank of captain. During the 1920s he held a variety of assignments. He supported Colonel William Mitchell at the latter's court-martial, although this was not well received by his superiors. Arnold wrote or cowrote five books on aviation, won a second Mackay Trophy, and continued to rise in the Army Air Corps. He became its assistant chief as a brigadier general in 1935. Three years later he became chief of the Army Air Corps as a major general after the death of Major General Oscar Westover in a plane crash.

Arnold proved particularly adept at improving the readiness of his service and expanding its resources, even with tight interwar budgets. Promoted to lieutenant general in December 1941, he was designated commanding general of the USAAF in the March 1942 War Department reorganization, which raised the air arm to equal status with the Army Ground Forces and Army Service Forces. Because the British had a chief of air

staff, Arnold was included on the British-American Combined Chiefs of Staff as well as the U.S. Joint Chiefs of Staff. Although he was not a major player in their decisions, he was a loyal supporter of U.S. Army Chief of Staff George C. Marshall, who repaid Arnold after the war by supporting the establishment of an independent U.S. Air Force. Arnold was promoted to general in March 1943 and became one of four five-star generals of the army in December 1944.

During the war Arnold built an organization that reached a peak of approximately 2.5 million personnel and more than 63,000 aircraft. He was a fine judge of people and selected the best men as his advisers, staff, and field commanders. Arnold also established an emphasis on technological research and development that his service retains today. Although he was not really involved in day-to-day combat operations, his authority to relieve the field commanders who really did run the war gave him leverage to influence their actions. Poor health limited his effectiveness late in the war, especially after a fourth heart attack in January 1945.

Arnold was a proponent of precision bombing, but his pressure for more raids despite bad weather led to increased use of less accurate radar-directed bombardments in Europe, and his demand for increased efficiency in Japan inspired the fire raids there. His main goals were to make the largest possible contribution to winning the war and to ensure that the USAAF received credit for the win through proper publicity.

Although Arnold retired in June 1946, his goal of an independent U.S. air service was realized the next year by his successor, General Carl Spaatz. In May 1949 Arnold was named the first general of the U.S. Air Force. Arnold truly deserves the title "Father of the United States Air Force." He died at Sonoma, California, on January 15, 1950.

Conrad C. Crane

See also: United States Air Force; Weapons, Air; World War II

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B

BELL AIRCRAFT

Bell Aircraft (and its modern subsidiaries) were an early example of the interconnection between the military and industry. During World War II, Bell Aircraft, led by their founder Larry Bell, was in close cooperation with the U.S. military, specifically General Hap Arnold, the commander of the U.S. Army Air Forces (AAF). Bell, already supplying aircraft for the United States and its allies, was personally asked by Arnold to build America's first jet aircraft. Building on British technology, the XP-59A *Airacomet* was built and flown before the end of the war, although it did not see combat. After the war, Bell built the world's first supersonic aircraft (Bell XS-1) in cooperation with U.S. Air Force speed testing. Bell Aircraft continued a close relationship with the military until Larry Bell's death in 1956. Today Bell subsidiaries (especially Bell Textron helicopters) provide equipment for the military and Coast Guard.

S. M. Pavelec

See also: Arms Manufacturers/Defense Industry Contractors; United States Air Force; Weapons, Air

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BERLIN BLOCKADE AND AIRLIFT (1948–1949)

The first serious crisis of the Cold War precipitated by the Soviet Union's attempt to cut off access to West Berlin, which lay within Soviet-occupied Eastern Germany. As part of the Potsdam Agreements, Germany and Berlin were divided into occupation zones by the victorious World War II allies (the United States, the Soviet Union, France, and Great Britain),



West Berlin children at Tempelhof airport watch fleets of U.S. airplanes bringing in supplies to circumvent the Russian blockade in this undated photo. The airlift began June 25, 1948 and continued for 11 months. (AP/Wide World Photos)

reaffirming principles laid out earlier at the Yalta Conference. Although the provisions of the agreement allocated occupation sectors of Berlin to the other three allies, no formal arrangements had been made for access to Berlin via the Soviet zone.

After the war, the relationship between the Soviet Union and the West began to deteriorate steadily, as demonstrated by disputes in the United Nations (UN), Winston Churchill's March 1946 "Sinews of Peace" speech (also known as the "Iron Curtain" speech), U.S. emphasis on Soviet containment, Soviet hostility toward the Marshall Plan, and a growing Western commitment to consolidate occupation zones in Western Germany to form a single, independent state. The Soviets, who had been invaded by Germany twice in the first half of the 20th century, were alarmed at the prospect of a reunited, independent Germany.

In late 1947 discussions on the fate of Germany broke down over Soviet charges that its former allies were violating the Potsdam Agreements. After the decision of the Western powers to introduce a new currency in their zones, on March 20, 1948, the Soviets withdrew from the Four-Power Allied Control Council, which controlled Berlin. Ten days later guards on the Eastern German border began slowing the entry of Western troop trains bound for Berlin. On June 7, the Western powers announced their intention to proceed with the creation of a West German state. On June 15, the Soviets declared the Autobahn entering Berlin from West Germany closed for repairs. Three days later all road traffic from the west was halted, and on June 21 barge traffic was prohibited from

entering the city. On June 24 the Soviets stopped all surface traffic between West Germany and Berlin, arguing that if Germany were to be partitioned, Berlin could no longer be the German capital.

Located 110 miles inside the Soviet occupation zone, West Berlin from the start of the Cold War had been a Western outpost deep within the communist bloc, a hotbed of intelligence operations by both sides, and the best available escape route for East Germans fleeing communism and Soviet control. U.S. President Harry S. Truman was convinced that abandoning Berlin would jeopardize control of all of Germany. He further believed that the Soviets were determined to push the Western powers out of Berlin, thereby discrediting repeated American assurances to its allies and the rest of Europe that it would not allow Berlin to fall.

A military response to the blockade was initially considered but rejected, as the Western powers lacked the manpower to counter the massive Red Army's numerical and strategic advantage. Thus the United States, working with its European allies, undertook to supply West Berlin via air corridors left open to them in a postwar agreement. The Berlin Airlift began on June 24, 1948, and continued uninterrupted for the next 324 days. Western fliers under the leadership of U.S. Air Force Lieutenant General Curtis LeMay made a total of 272,000 flights into West Berlin, delivering thousands of tons of supplies every day.

The airlift was at first meant to be a short-term measure as Allied officials did not believe that the airlift could support the whole of Berlin for any length of time. The situation in Summer and Fall 1948 became very tense as Soviet planes buzzed U.S. transport planes in the air corridors over East Germany, but the allies only increased their efforts to resupply the German city once it became apparent that no resolution was in sight. The Soviets never attempted to shoot down any of the Western aircraft involved in the airlift, no doubt because such a provocation might well result in war.

Hundreds of aircraft were used to fly in a wide variety of cargo items, including more than 1.5 million tons of coal. By Fall 1948, the airlift, called "Operation VITTLES" by the Americans, was transporting an average of 5,000 tons of supplies a day. At the height of the operation on April 16, 1949, an aircraft landed in Berlin every minute around the clock.

The airlift was an international effort; airplanes were supplied by the United States, the United Kingdom, and France, but there were also flight crews from Australia, Canada, South Africa, and New Zealand. The three main Berlin airfields involved in the effort were Tempelhof in the American sector, Gatow in the British zone, and Tegel in the French sector. The British even landed seaplanes on the Havel River.

The airlift gained widespread public and international admiration, and on May 12, 1949, the Soviets, concluding that the blockade had failed, reopened the borders in return for a meeting of the Council of Foreign Ministers, perhaps believing that they could have some influence on the Western allies' proposed plans for the future of Germany. Even though the Soviets lifted the blockade in May, the airlift did not end until September 30 because the allies sought to build up sufficient amounts of reserve supplies in West Berlin in case the Soviets blockaded it again. In all, the United States, Britain, and France flew 278,118 flights transporting more than 2.3 million short tons of cargo. In total, 31 Americans and 39 British citizens, most of them military personnel, died in the airlift.

In the end, the blockade was not only completely ineffective but also backfired on the Soviets in other ways. The blockade provoked genuine fears of the Soviets in the West and introduced even greater tension into the Cold War. Instead of preventing an independent West Germany, it actually accelerated allied plans to set up the state. It also hastened the creation of the North Atlantic Treaty Organization (NATO), an American–West European military alliance.

James H. Willbanks

See also: Cold War; German Democratic Republic; Germany, Federal Republic of; North Atlantic Treaty Organization (NATO); Soviet Union (USSR); Truman, Harry S.; United States Air Force

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BERLIN CRISES (1958–1961)

Continual disagreement over the control of Berlin between the Soviet bloc and the Western Allies had begun in earnest in the late 1940s, culminating in the Berlin Blockade (1948–1949). Then, following a period of relative—if tense—calm, renewed Cold War tensions transformed the city into one of the world's potential flash points during 1958–1961.

With Soviet prestige dramatically boosted by the launch of *Sputnik 1* in 1957, Soviet Premier Nikita Khrushchev decided to revive the issue of Berlin. On November 10, 1958, he sought to end the joint-occupation agreement in the city by demanding that Great Britain, France, and the United States withdraw their 10,000 troops from West Berlin. He also declared that the Soviet Union would unilaterally transfer its occupation authority in Berlin to the German Democratic Republic (GDR, East Germany) if a peace treaty were not signed with both East Germany and the Federal Republic of Germany (FRG, West Germany) within six months. West Berlin would then become a free city. Khrushchev couched his demands by portraying West Berlin's proposed free-city status as a concession because it lay in East German territory and therefore properly belonged to East Germany. None of the Western powers, however, formally recognized East Germany, viewing it as a mere subsidiary of the Soviet Union.

The United States flatly rejected Khrushchev's demands, although other Western powers initially tried to meet some of the Soviet leader's demands by proposing an interim Berlin agreement that placed a limit on Western forces and curtailed some propagandistic West Berlin activities, such as radio broadcasts that targeted East German audiences. These Allied proposals would have given the Soviets and East Germans some measure of power in West Berlin, a concession that many West Berliners

viewed as a highly dangerous step toward neutralization and, ultimately, abandonment. In December 1958, the Allies issued a North Atlantic Treaty Organization (NATO) declaration rejecting Soviet demands and insisting that no state had the right to withdraw unilaterally from an international agreement.

Khrushchev gradually retreated from his hard-line stance on Berlin. American U-2 overflights of the Soviet Union indicated that the West had an accurate count of the comparatively small number of Soviet nuclear missiles, and the Soviet leader obviously feared starting a war that he could not win. The Soviets now envisioned a gradual crowding out of the Western powers without bloodshed. In the meantime the economic situation in East Germany continued to deteriorate, with vast numbers of refugees continuing to flee to the West.

In 1961 the newly elected U.S. president, John F. Kennedy, abandoned the demand for German unification that had been part of the U.S. policy since the 1940s. His foreign policy team had drawn the conclusion that such a policy was not only impractical but might actually provoke a U.S.-Soviet war. Kennedy and his advisors decided that only three interests were worth the risk of nuclear war: the continued Allied presence in West Berlin, Allied access to West Berlin by land and by air, and the continued autonomous freedom of West Berlin. Realizing that a rather inconsequential event and a sequence, of mutually threatening and unnecessary mobilizations had led to World War I in 1914, Kennedy worried constantly that a relatively minor incident in Germany could escalate into World War III.

Meanwhile, East German leader Walter Ulbricht decided to close the East Berlin borders in an attempt to exercise control over all traffic to and from Berlin, including Allied military as well as German civilian travelers. On August 13, 1961, East German authorities began the construction of the Berlin Wall, essentially sealing off East Berlin from West Berlin and permanently bifurcating the city. Ulbricht sought to control not only what went into East Berlin but also what came out as well, including thousands of East Germans who sought refuge in West Berlin. The Soviets and the East Germans had wagered that the West would not react to the construction of the Wall. Kennedy, in accordance with his policy, offered little resistance. Emboldened, Ulbricht began to take further measures to assert control over Berlin.

Ten days after closing the border, East Germany allowed tourists, diplomats, and Western military personnel to enter East Berlin only via the crossing point at Berlin Friedrichstrasse. The only other two checkpoints into East Germany were Helmstedt at the West German–East German border and Dreilinden at the West Berlin–East Germany border. According to the military's phonetic alphabet, the Helmstedt checkpoint became Alpha, Dreilinden was nicknamed Checkpoint Bravo, and the checkpoint at Friedrichstrasse was famously dubbed Charlie. Checkpoint Charlie would soon become one of the best-known symbols of the Cold War.

At all of the East German checkpoints tourists were fully screened, but the postwar occupation agreement prevented East German authorities from checking any members of the Allied military forces. On October 22, 1961, Allan Lightner, chief of the U.S. Mission in Berlin, attempted to pass through Checkpoint Charlie to attend the opera in

East Berlin. East German police stopped Lightner and asked him for identification. Lightner, following long-standing instructions, stated that he was a member of the U.S. occupation authority as shown by his U.S. Mission license plate and that he therefore did not have to provide identification. The East German police refused to let Lightner pass. General Lucius D. Clay, the hero of the Berlin Airlift and now President Kennedy's personal representative in West Berlin, immediately dispatched a squad of U.S. soldiers to the site. With that, Lightner's car went through the checkpoint, backed up, and went through it again and again to make the point that U.S. officials were going to move freely. Although Kennedy was reluctant to precipitate a crisis over a somewhat trivial affair, Clay nonetheless ordered tanks to the checkpoint, while the Soviet military brought in its own tanks to oppose them on the other side.

The 1961 Checkpoint Charlie incident thus proved that the Soviets, not the East Germans, were actually in charge of East Germany. The photos of American and Soviet tanks facing each other at the checkpoint on October 25 became one of the most memorable images of the Cold War. The confrontation boosted the morale of West Berliners because it clearly showed that the Allies, particularly the United States, would not yield to East German or Soviet pressure tactics. It also unmasked the charade of an independent and autonomous East Germany that could deal on an equal basis with the Western powers.

Caryn E. Neumann

See also: Berlin Blockade and Airlift (1948–1949); Cold War; German Democratic Republic (GDR, East Germany; German, Federal Republic of (FRG, West Germany); Kennedy. John Fitzgerald; North Atlantic Treaty Organization (NATO); Soviet Union (USSR); Weapons, Nuclear

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BOEING COMPANY

Incorporated in 1917, the Boeing Company has had a long-standing relationship with the U.S. government and military. As one of the most obvious examples of the Military-Industrial Complex, Boeing to this day remains a major player in American military design and production. Based in Seattle, Washington, Boeing is the main supplier of American civilian aircraft, as well as the second largest aerospace and defense contractor in the world.

At the end of World War I, Boeing was emerging as an important aircraft supplier to the U.S. government. With the end of the war, cancelled contracts meant that Boeing had to reenvision its role in U.S. industry. Boeing employed years of experience and found a niche market in civilian aviation, while still competing for scarce military contracts. In the interwar years, Boeing stayed afloat with civilian aviation—sold to both U.S. companies and abroad—and continued research and development.



Ground crews on the island of Saipan prepare a Boeing B-29 Superfortress for an attack on Japan in spring 1945. (Library of Congress)

By 1934 the U.S. government realized that it needed to expand aviation research and development for potential military use. Boeing proposed the XB-15 four-engine bomber for military use at the same time as it hit stride in civilian aviation improvements. Heavy bomber (four-engine) technology translated easily to the growing market for civilian aviation as Boeing continued development on the *Clipper* (passenger flying boat) and *Stratoliner* (Model 307, the first pressurized civilian airliner). In 1938 the XB-15 (later Model 299) was accepted by the U.S. Army as the Boeing B-17 *Flying Fortress* heavy bomber. In addition to U.S. contracts, Boeing also began producing for the British. When World War II erupted, U.S. contracts grew and Boeing became a primary producer for the U.S. Army Air Forces (AAF). In addition to the B-17, Boeing also produced the B-29 *Superfortress,* arguably the most advanced bomber design of the war.

By the end of World War II, Boeing was ensconced as a major military provider. Although contracts dried up at the end of the war for bombers, Boeing returned to production of luxury civilian airliners. The technology once again transferred easily to military use; Boeing answered the call for military transports, aerial tankers, and further bombers like the B-50, the last piston-engine bomber produced in the United States.

With the advent of jet technology, Boeing shifted easily to new developments. Producing jet engines was a side project; producing jet aircraft was the focus. Boeing emerged in the postwar era flush with cash with the American decision to pursue advanced military technology as the Cold War began. Boeing continued civilian production and

competed for military designs for both jet fighters and bombers. Using cutting-edge technology and years of experience, Boeing won contracts for a succession of bombers including the B-47 *Stratojet* and the ubiquitous B-52 *Stratofortress.* Their fighter designs were less popular; Boeing conceded fighter development to North American and Lockheed.

By the 1960s Boeing increased its influence within the Military-Industrial Complex, expanding its production facilities and competing for new markets. Boeing became involved in production of missiles, helicopters (after the acquisition of Vertol in 1960), and gained an early lead in the Space Race. Boeing provided increasingly more material for the U.S. military while maintaining their lead in the development of civilian aviation with designs like the 707 and 747.

Throughout the Cold War, Boeing was an industry leader, providing hardware for the Military-Industrial Complex. By the end of the Cold War and into the 21st century, these contributions continue. While producing new civilian airliners for the global market (including the new 777), Boeing expanded its influence within the Complex with its acquisition of Rockwell International (1996), a merger with McDonnell Douglas (1997), and continued production for the U.S. government. In addition to missiles, helicopters, avionics, and the Space Program (including the Space Shuttle and components for the International Space Station), Boeing continues to compete for Air Force projects. Although they lost the 1990s competition for the Advanced Tactical Fighter to Lockheed, they won the contracts for advanced bomber production, specifically the B-1 *Lancer,* as well as the main U.S. military transport, the C-17 *Globemaster III.* Following the acquisition of McDonnell Douglas, Boeing finally entered the fighter market and produces the F-15 *Eagle* and the F/A-18 *Hornet.* Boeing also contributes to the F-22 *Raptor* program with Lockheed Martin.

S.M. Pavelec

See also: Arms Manufacturers; Cold War; Defense Contractors; Lockheed; McDonnell Douglas; Research and Development; Rockwell; Space Race; Weapons, Air; US Air Force and Army; World War I and II

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BOMBER GAP

In the immediate aftermath of World War II, the Truman administration and the U.S. military became deeply concerned about the strategic balance between the United States and the Soviet Union. Primary concerns focused on the development of military aircraft and the timetable for which the world could expect the Soviet Union to acquire an atomic bomb. With respect to these two concerns, President Truman established the Air Policy Commission in 1947, under the chairmanship of Thomas K. Finletter, to analyze and review intelligence and data on the Soviet Union and their aviation infrastructure, as well as their atomic bomb program. On the development of advanced aviation capabilities, the Air Policy Commission noted that the Soviet Union had a robust building program that was technologically comparable, if not "more advanced than the United States."

The most notable example was the Tu-4 bomber, which was a copy of the American B-29. In fact during World War II, the Soviet Union had taken the opportunity to reverse engineer an American B-29 that had landed in the Soviet Union. This aircraft served as the basis for the development of the Tu-4 bomber.

In addition to the development of strategic bombers, the Air Policy Commission debated when the Soviet Union would acquire atomic weapons. Based upon their analysis the members of the committee recommended that by 1953 the Soviet Union would have atomic weapons. However, in 1949 the Soviet Union tested its first atomic bomb and shocked the United States. Not only did this event astound the national security apparatus in the Executive Branch, but it also demonstrated the lack of intelligence the United States actually possessed on current military and atomic programs in the Soviet Union. This lack of intelligence led the U.S. government to begin to make assumptions about the status and numbers of Soviet aircraft and atomic weapons.

Even before the Soviet Union's first test of their atomic bomb in 1949, the Central Intelligence Group, which Truman had created in 1946 as an "interim intelligence committee," surmised that the Soviet Union would need bombers to deliver atomic weapons to their targets. Between 1946 and 1948 sporadic intelligence gathered from "defectors" and observing the Annual May Day military parades, which included fly-overs of the latest Soviet's military aircraft, provided Truman and his administration with indications that the Soviet Union was indeed increasing their production of bombers. During the May Day parade in 1948, the Soviet Union unveiled their Tu-4 bombers, which led intelligence experts in the administration to advocate the position that the Soviet Union had pushed ahead of the United States in bomber production. The test of the Soviet Union's atomic bomb a year later further confirmed the intelligence experts' assumptions hypothesized in the previous year.

Although the newly formed Central Intelligence Agency (CIA) and U.S. Air Force worked to get updated and accurate information on the status of the Soviet Union bomber program, the United States still lacked the capability to confirm accurately the exact numbers of strategic bombers possessed by the Soviet Union. In 1952 the United States received a third shock that further reinforced the perceived gap between the U.S. bomber force and the Soviet Union's bomber force.

During the 1954 May Day parade, Colonel Charles E. Taylor, the Air Attaché in Moscow, observed a "squadron of jet-powered bombers" fly past. Later in 1955, U.S. personnel again observed jet bombers flying during Soviet Aviation day. The aircraft that the U.S. observed was the M-4 Bison. The appearance of these aircraft in seemingly large numbers—a nine-ship formation in 1955—led the U.S. intelligence agencies to assume again that the Soviet Union had substantial numbers of strategic bombers. The reality of the situation was that the Soviet Union had only produced a small number of these aircraft and had the same aircraft make several passes in front of the crowds to convey the impression that there were greater numbers of aircraft than actually existed. The United States was unaware of this strategic deception.

The frustration that first Truman and then Eisenhower suffered as a result of

the lack of capability to gather solid intelligence fueled the assumption that the Soviet Union possessed a far greater number of bombers than they actually had. In fact by 1955 the Soviet Union had only produced 10 M-5 Bison bombers and had ceased production of the Tu-4 bomber of which they had produced approximately 800 of the outdated propeller-driven aircraft. However, the Eisenhower administration had no way of knowing these numbers.

The lack of solid intelligence on the Soviet Union led the United States to develop two specific pieces of hardware to collect the necessary information needed to stabilize the strategic balance. The first was the U-2 spy plane and the second was the CORONA spy satellite. Both of these airborne systems received support and funding from the Eisenhower administration in an attempt to peer behind the Iron Curtain. The development of the U-2 program was a close collaboration among the U.S. Air Force, the CIA, and the Lockheed Corporation. The requirements identified by the U.S. Air Force and the CIA called for an aircraft that could fly over the Soviet Union to collect photographic intelligence of military and industrial cites. The U.S. government turned to the Lockheed Corporation and its head designer Clarence "Kelley" Johnson to design and produce the necessary aircraft. Johnson and his team of designers in the Skunk Works, the name given to the special projects section of Lockheed, produced an aircraft that was capable of high-altitude flight (70,000 feet), extreme range (7,000 miles), and carrying the latest and most advanced photographic reconnaissance equipment. The U.S. Air Force and the CIA both purchased this valuable asset to collect much needed intelligence on the Soviet Union.

In May and June 1956 President Eisenhower authorized the U-2 aircraft to fly over Soviet Bloc territory. Pleased with the results of the intelligence, Eisenhower authorized the CIA's director of the U-2 program, Richard Bissell, to conduct the first flight over the territory of the Soviet Union in July 1956. The specific objective of this flight over Soviet territory was to collect intelligence on the Soviet Union's bomber fleet, missile plants, and rocket test facilities. The flight had finally provided the United States with hard intelligence to alleviate the accusations of the bomber gap, but the Eisenhower administration had to maintain the secret status of the U-2 aircraft.

Although the U-2 had performed well in these initial flights, Eisenhower and members of his cabinet became increasingly concerned about the vulnerability of the U-2 to Soviet interceptor aircraft, once Bissell revealed to the Director of Central Intelligence (DCI), Allen Welsh Dulles, that the Soviet Union's radar networks had observed the U-2's intrusion into its airspace. Between this first flight into the Soviet Union and the cessation of over-flights, after the Soviet Union shot down Gary Powers in his U-2 on May 1, 1960, Eisenhower wrestled with the dilemma. The crux of the conundrum faced by Eisenhower was the need to get up-to-date intelligence on the strategic programs of the Soviet Union, juxtaposed against sending aircraft over their sovereign territory, which was seen as a violation of international law. The incident on May 1, 1960, ended the flights of the U-2 over the territory of the Soviet Union, but this did not satisfy Eisenhower's need for intelligence.

As the United States developed the U-2, the Eisenhower administration had

also authorized research, development, and deployment of satellites. The DISCOVERER program, which was the name of the civilian scientific program, served as a public cover for a photoreconnaissance satellite that would later be known as CORONA. Before Eisenhower left office, the United States had retrieved the first satellite film capsule, which had collected more photographic intelligence over the Soviet Union than all U-2 over-flights combined. In the 1960s satellites provided U.S. presidents with intelligence necessary to avoid another replay of the bomber gap. However, before the public became aware of spy satellite technology, Senator John F. Kennedy accused the Einsenhower administration of allowing a "missile gap" to emerge. Eisenhower showed Kennedy the intelligence collected by satellites in an effort to dispel the accusation. Despite the use of the latest technology to collect intelligence over the Soviet Union, accusations of a missile gap persisted into the election of 1960.

Sean N. Kalic

See also: Arms Race; Central Intelligence Agency (CIA); Cold War; Eisenhower, Dwight David; Kennedy, John Fitzgerald; Lockheed; Missile Gap; Space Race; Truman, Harry S.; United States Air Force; Weapons, Air; Weapons, Nuclear; Weapons, Space

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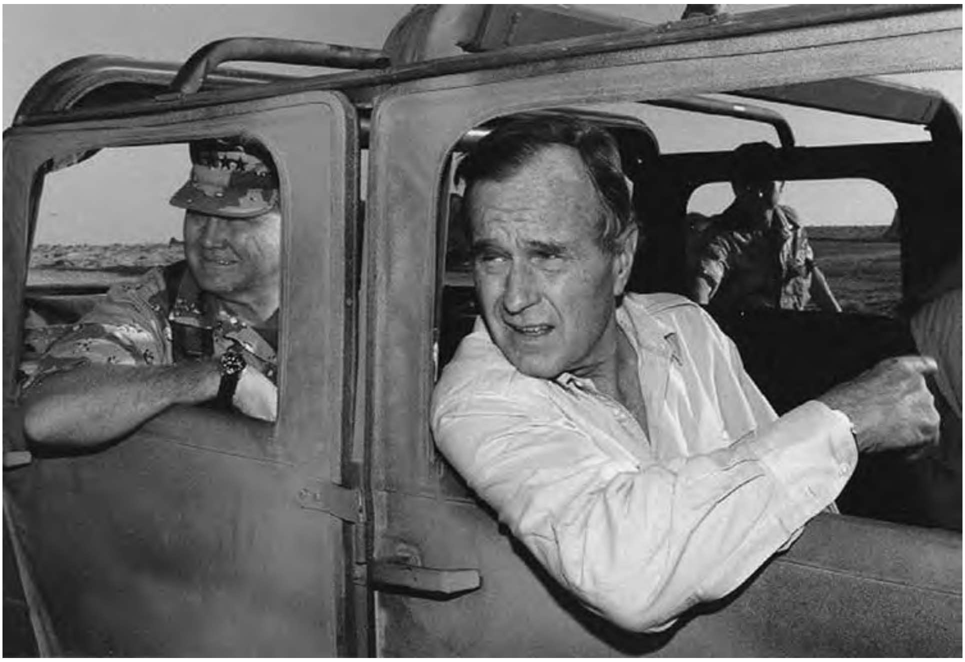
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BUSH, GEORGE HERBERT WALKER (1924–)

U.S. congressman, ambassador, director of the Central Intelligence Agency (CIA), vice president (1981–1989), and president (1989–1993). George H. W. Bush was born on June 12, 1924, in Milton, Massachusetts, to a wealthy and patrician family. His father, Prescott Bush, was a prominent U.S. senator from Connecticut. Educated at the elite Phillips Andover Academy, on his 18th birthday Bush enlisted in the U.S. Navy, becoming the navy's youngest pilot. After World War II he married Barbara Pierce, graduated from Yale with an economics degree after two and a half years, moved to Texas, and embarked on a career in the oil business.

Bush entered politics in 1964 as a Republican, winning a seat in the U.S. House of Representatives. In 1970 he ran unsuccessfully for the U.S. Senate. President Richard M. Nixon appointed Bush ambassador to the United Nations (UN) in 1971. In this post for two years, Bush fought to preserve Nationalist China's (Taiwan) seat in the UN, an effort that was ultimately unsuccessful.

From 1973 to 1976 Bush held a series of important government posts, including the directorship of the CIA. When he took over the CIA in 1975, the agency was reeling from revelations about its role in assassination plots, coups, and other covert operations conducted in the name of the Cold War. He tried to rehabilitate the CIA during his tenure, and his efforts met with some success.



President George H. W. Bush rides in an armored jeep with Gen. Norman Schwarzkopf in Saudi Arabia on November 22, 1990. Schwarzkopf was one of several military advisers who was awarded the Presidential Medal of Freedom by President Bush in 1991. (George Bush Presidential Library)

In 1980 Bush sought the Republican presidential nomination but lost to former California Governor Ronald Reagan, who then named Bush his running mate. The pair went on to win an overwhelming victory in the 1980 elections. As vice president, Bush loyally backed Reagan's hard-line Cold War policies. Military spending increased dramatically during Reagan's first term, and the administration provided considerable aid to foreign governments and insurgents to combat communism.

Bush bolstered these measures by traveling around the globe soliciting support for Reagan's policies, particularly in Central America. Bush met with Panamanian strongman Manuel Noriega, who had allied himself with the anti-Communist Nicaraguan Contras. The Contras were fighting the Sandinista government and receiving U.S. military and financial aid. After Congress voted to cut off assistance to the Contras in 1983, the Reagan administration began covertly aiding them. Members of the National Security Agency concocted a plan by which proceeds from the sale of weapons to Iran were diverted to the Contra rebels. When the Iran-Contra story broke in 1986, Bush denied any knowledge of the illegal operation. Questions remained about his role in the Iran-Contra Affair when he ran for the presidency in 1988, but he nonetheless secured a sound victory that November over Massachusetts Governor Michael Dukakis.

When Bush took office in January 1989 the Cold War was winding down. During Reagan's second term, relations between the United States and the Soviet Union had improved tremendously, and

Bush continued to negotiate with Soviet Premier Mikhail Gorbachev in his first year as president.

In November 1989 the momentous fall of the Berlin Wall ushered in the end of the Cold War. Bush's reactions to the changes in Eastern Europe were calculatingly restrained. He and his foreign policy advisors were wary of antagonizing the Soviet leadership and were fearful that the Soviet military might be employed to stanch the prodemocracy movements. But Soviet weakness and Gorbachev's promises not to intervene led to a peaceful revolution. By January 1992 the Soviet Union had been officially dissolved, and later that year President Bush and the new Russian leader Boris Yeltsin declared an end to the Cold War.

After Iraq invaded and occupied Kuwait in August 1990, Bush successfully mounted an international coalition force that liberated Kuwait and dealt a crippling blow to Iraqi dictator Saddam Hussein's military. The Persian Gulf War, Operation DESERT STORM, ended in less than 100 hours of ground fighting after a protracted air war that had begun in January 1991. The war liberated Kuwait and protected Saudi Arabian and Middle Eastern oil supplies, but left Saddam Hussein's bloodthirsty regime in place. After the war, Bush enjoyed meteoric approval ratings, but a deep economic recession combined with Bush's inability to offer solutions to the downturn resulted in his losing a presidential reelection bid in 1992 to Democrat William Clinton.

Justin P. Coffey

See also: Central Intelligence Agency (CIA); Cold War; Nixon, Richard Milhous; Persian Gulf War I; Reagan, Ronald Wilson

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BUSH, GEORGE WALKER (1946–)

Republican politician, governor of Texas (1995–2001), and president of the United States (2001–2008). George Walker Bush was born in New Haven, Connecticut, on July 6, 1946, and grew up in Midland and Houston, Texas. He is the son of George H. W. Bush, president of the United States from 1989 to 1993. The younger Bush graduated from the exclusive Phillips Academy in Andover, Massachusetts, and from Yale University in 1968. He volunteered for the Texas Air National Guard after graduation and became a pilot, although questions later surfaced about his actual service record. He earned an MBA from Harvard University in 1975 and returned to Texas, founding Arbusto Energy Company in 1977. He then served as a key staffer during his father's 1988 presidential campaign and later became one of the owners of the Texas Rangers baseball team. In 1994 Bush was elected governor of Texas. As governor, he worked with the Democratic-dominated legislature to reduce state control and taxes. In 1996 he won reelection.

In 2000, having set records for fundraising and having campaigned as a compassionate conservative, Bush easily won the 2000 Republican nomination for the presidency of the United States. His



As rescue efforts continued in the rubble of the World Trade Center in New York City, President George W. Bush stood with firefighter Bob Beckwith on a burnt fire truck during a tour of the devastation on September 14, 2001. (AP/Wide World Photos)

platform included tax cuts, improved schools, Social Security reform, and increased military spending. On foreign policy issues, he downplayed his obvious lack of experience but eschewed foreign intervention and nation-building.

The U.S. presidential election of November 2000 was probably the most contentious in American history. The Democratic candidate, Vice President Al Gore, won a slim majority of the popular vote, but the electoral vote was in doubt. Confusion centered on Florida. Eventually, the issue reached the U.S. Supreme Court. On December 12, 2000, a deeply divided Court halted the recount in Florida, virtually declaring Bush the winner. For many Americans, Bush was an illegitimate and unelected president.

As president, Bush secured a large tax cut in hopes that this would spur the economy, and he pushed forward Social Security reform. The course of his presidency was forever changed on September 11, 2001, when 19 hijackers associated with the Al Qaeda terrorist organization seized commercial airliners and crashed them into the World Trade Center and the Pentagon. The attacks killed 2,657 Americans and 316 foreign nationals. Over the next few days, Bush visited the scenes of the attacks, reassuring the public and promising to bring those responsible to justice. The catastrophe of September 11 seemed to bring

legitimacy and purpose to Bush's presidency.

On September 20 Bush appeared before Congress and accused Al Qaeda of carrying out the attacks. He warned the American people that they faced a lengthy war against terrorism. He demanded that the Taliban government of Afghanistan surrender members of Al Qaeda in their country or face retribution. When the Taliban failed to comply, U.S. and British forces began a bombing campaign on October 7. Indigenous forces, with heavy American support, defeated the Taliban and by November 2001 had captured the capital of Kabul. Taliban resistance continued, but the multinational coalition was nevertheless able to establish a new government in Afghanistan.

The Bush administration also sought to improve national security. A new Department of Homeland Security was created to coordinate all agencies that could track and defeat terrorists. In October 2001 Congress passed the so-called Patriot Act, giving the federal government sweeping powers to fight the war on terror. Many Americans were uncomfortable with this legislation and feared that it might undermine American freedom.

The budget for the Military-Industrial Complex also reflected the new policy changes. The Bush administration asked for, and received, more money immediately (and in subsequent requests) for expanded military recruitment, procurement, and spending. However, although the threats were new, the military focused on procurement of legacy systems without significant changes in policy or doctrine. The last two, with corresponding changes in equipment, did not come until years later when the Bush leadership realized that the American military was not well-suited for counterinsurgency warfare. Regardless, military spending rose to new heights and remained in ascendancy throughout the Bush years.

In 2002 the Bush administration turned its attentions toward Iraq. Intelligence reports suggested that Iraqi dictator Saddam Hussein was continuing to pursue weapons of mass destruction (WMDs). When Bush demanded that he comply with United Nations (UN) resolutions demanding inspection of certain facilities, Hussein refused. By the end of 2002 the Bush administration had formulated a new policy of preemptive warfare to destroy regimes that intended to harm the United States before they were able to do so.

By the beginning of 2003 a military buildup against Iraq was taking place. However, Bush's efforts to create a multinational coalition failed to achieve the success of the Gulf War coalition against Iraq in 1991. Nearly all of the forces were American or British.

Military operations commenced on March 19, 2001, and Baghdad fell on April 9. At that point organized resistance was minimal, but manpower resources, while sufficient to topple Hussein, were clearly insufficient to maintain the peace. Rioting and looting broke out, and weapon stockpiles were pillaged by insurgents. Religious and ethnic tensions came to the fore between Sunnis, Shias, and Kurds. Far more American troops were killed trying to keep order in Iraq than had died in the overthrow of the regime. Although Bush won reelection in November 2004 in large part because of his tough stance on the so-called war on terror, support for the war gradually waned, the consequences of American military and Iraqi civilian dead, reports of American atrocities committed in Iraq, and the war's

vast expense. Meanwhile, large budget deficits and trade imbalances piled up. Clearly, the failure to find WMDs in Iraq undercut the stated reason for the attack, although Bush then claimed that the war was about overthrowing an evil dictatorship and bringing democracy to Iraq.

The Bush administration was at first ambivalent toward the Arab-Israeli conflict, but with violence escalating, in August 2001 at the urging of Crown Prince Abdullah of Saudi Arabia, Bush issued a letter supporting the concept of a Palestinian state. September 11 and ensuing events in Iraq soon took precedence, however. Bush and his advisers realized that Arab support, or at least acquiescence, in his Iraq policies would be more likely if a peace process were under way.

On June 24, 2002, Bush publicly called for a two-state solution. He failed to outline specific steps but supported a process in which each side would meet certain criteria before moving to the next step. The result was called the Road Map to Peace. Bush agreed to work with the European Union (EU), the UN, and Russia in developing it. This so-called Quartet developed a series of steps intended to provide assurances for each side but without involving the Israelis or Palestinians in its development.

The Road Map to Peace was unveiled in March 2003 just before the invasion of Iraq, but no details were announced. In June of that year, Bush arranged a summit conference at Aqaba, Jordan, involving Prime Minister Ariel Sharon of Israel and Prime Minister Mahmoud Abbas of the Palestinian Authority (PA). Progress on the plan stalled. The Bush administration's push for elections in the Palestinian-controlled West Bank backfired when these were won by the radical Hamas organization, which has called for the destruction of Israel. The peace process then ground to a halt. The Bush administration, faced with mounting American public dissatisfaction over the continuing American troop presence in Iraq, concentrated on that issue to the exclusion of virtually all others, foreign and domestic.

Tim J. Watts

See Also: Global War on Terrorism (GWOT); Israel; Persian Gulf War II; Weapons of Mass Destruction (WMDs)

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BUSH, VANNEVAR (1890–1974)

Vannevar Bush was one of the most influential figures in 20th century American engineering and science. As the creator and chairman of the World War II Office of Scientific Research and Development (OSRD), Bush transformed the relationship between the federal government, the scientific establishment, and the uniformed military. Faced with the challenge of mobilizing American scientific talent for total war,



Considered by many to be the father of the digital age, Vannevar Bush was one of the most important scientists of the 20th century. His 1945 essay "As We May Think" suggested a way to organize and access information that is uncannily similar to today's World Wide Web. He also invented the first electrical analog computer and many other devices. (Library of Congress)

Bush created a model that channeled federal funding to private laboratories, centers, and universities in the form of large-scale research contracts. This system of "federalism by contract" increased the status and influence of scientists in military research and development and marked the beginning of major government funding of basic and applied science in the United States. Under Bush's leadership, the OSRD and the American scientific community developed a series of innovations employed by American forces in World War II: advanced radar, submarine and anti-submarine weapons and sensors, proximity fuses, and the atomic bomb. In addition to his administrative talents, Bush was himself an early pioneer in the field of analog computing. His insights on the future of computing and its relationship to human memory served as inspirations for generations of innovators. Based on his accomplishments and influence, Bush should be considered one of the founding fathers of the modern Military-Industrial Complex.

Born in Everett, Massachusetts, Vannevar Bush was the youngest of three children born to Richard Perry Bush, a Universalist preacher. Though somewhat sickly as a child, Bush quickly exhibited talents in mathematics and practical invention. Bush enrolled at Tufts College in 1909, and funded the completion of his bachelors and masters degrees by

tutoring students in mathematics. After a brief stint as an engineering supervisor for General Electric, Bush returned to Tufts in 1914 to serve as a mathematics instructor. In 1915 he enrolled in the doctoral program in electrical engineering at the Massachusetts Institute of Technology (MIT) and received his PhD in 1916.

Bush returned to Tufts in 1916, this time as an assistant professor of electrical engineering. Soon after his arrival at Tufts, Bush accepted an offer to run the research laboratory of the nearby American Radio and Research Company (AMRAD). Bush's willingness to mix academic research with industrial and entrepreneurial ventures set a pattern that he would follow throughout his career. In 1917 Bush sought to interest the U.S. Navy in the use of magnetic anomaly detection to locate submarines. His efforts were unsuccessful and he emerged from his first encounter with military research and development convinced that he "had learned quite a bit about how not to fight a war."

In 1919 Bush returned to MIT to accept a position in the department of electrical engineering. His research there focused on the emerging field of analog computing. Starting in the mid-1920s, Bush developed a series of increasingly powerful machines designed to solve higher order mathematical calculations in science and engineering. In 1931 he completed his Differential Analyzer, an analog computer used in a range of academic, industrial, and military problems. In 1945 he returned to the topic of computing, articulating a vision of a future world in which "memex" computers would store data and serve as extensions of the human mind. The insights laid out in his essay "As we may think" inspired later generations of innovators in digital computing and database search.

During his tenure at MIT, Bush continued his work with AMRAD and played a major role in its expansion into the production of consumer radios. As a leading researcher and equity holder in the renamed Raytheon Corporation, Bush's academic insight and commercial instincts drove the company to success in the burgeoning market for consumer electronics.

While his accomplishments led to his appointment as vice president of MIT in 1932, Bush was not content to remain on the sidelines as war in Europe approached. Convinced that America was unprepared for war, Bush took two steps in the late 1930s to place himself at the intersection of government policy, civilian science, and military research. In August 1938 Bush accepted a seat on the National Advisory Committee for Aeronautics (NACA), a federal agency charged with the development of commercial and military aviation technology. NACA gave Bush his first glimpse of the evolving relationship between science and military research and offered a ready model for the cross-service organizations he would construct in World War II. His conviction that war might be close at hand also influenced his decision to leave MIT in 1939 and accept the chairmanship of the Carnegie Institution, a large foundation located in Washington and focused on the promotion of scientific research.

From his new vantage point in Washington, Bush began to consider the problem of mobilizing American science for war. Based on his experiences in World War I, Bush was convinced that the military services lacked the technological savvy and bureaucratic inclination to

mobilize science effectively on their own. In his opinion, what was needed was an NACA-type organization for the military establishment as a whole—an agency that brought scientific talent, military leaders, and industry together to promote rapid technological innovation.

In May 1940 Bush lobbied for the creation of just such an organization under the title of the National Defense Research Committee (NDRC). Bush proposed an NACA-type structure to "correlate and support scientific research on the mechanisms and devices of warfare." He envisioned an organization that would identify gaps in existing military research and fill them by funding applied research in private labs and universities. Capitalizing on the political shock of the German offensive France, Bush secured President Franklin D. Roosevelt's personal approval in late June 1940 for the new organization and his handpicked slate of committee members. At a single stroke, Bush had created the organizational vehicle for a new public-private partnership in defense research and placed himself at its head. Bush's long cultivation of relationships with the leading figures in American science enabled him to staff the NDRC with individuals of uncommon influence and stature. Equally significant, his appointment as chairman marked his ascent to the role of the senior presidential adviser on military technology. Armed with a formal organization and political influence, Bush began to redefine the role of science in American war preparation.

While the NDRC was an important vehicle in Bush's reformation, he soon found it lacking in funding and jurisdiction. The NDRC was dependent on ad hoc presidential funding, and the increasing scale of the rearmament soon made this an obstacle to expansion. What was needed was Congressional appropriations on an unprecedented scale. Equally important, the NDRC's charter limited it to research only. Bush argued that the application of technology must involve the production and demonstration of small batches of military equipment.

In June 1941 Bush sought and received Roosevelt's approval for a new organization that would address these deficiencies—the OSRD. Under the auspices of this new organization, Bush would eventually mobilize over 17,000 scientists and researchers through some 2,500 major contracts (totaling some $558 million [$6.8 billion in 2009 dollars]) with universities and research laboratories. These contracts led to the introduction of major innovations in the fields of radar, communication, undersea warfare, transportation, and military medicine.

The crowning wartime achievement of Bush and OSRD was the development of the atomic bomb. Bush was personally responsible for a series of critical decisions on the development, management, testing, and later employment of the device. Throughout, Bush played the dual role of bureaucratic organizer and presidential adviser. His leadership was central to the president's decision to devote enormous resources and the highest industrial priority to the bomb project. His organizational judgment was equally important. Bush drove the decision to put the War Department in charge of the industrial phase of the Manhattan Project, and he personally endorsed the costly, parallel technological assault on uranium enrichment.

Though Bush's personal influence waned with the death of Roosevelt and the end of the war, his OSRD model set

the terms of the postwar relationship between science, the government, and the military. As the war drew to a close, Bush drafted an influential report titled "Science: The Endless Frontier" which proposed a peacetime government organization to promote basic and applied science. While he failed to convince the Congress and President Truman's administration to establish this National Science Foundation, his arguments and the wartime achievements shaped the terms of postwar science policy. First, the government assumed a far greater role in the direct funding of basic and applied research. This support followed the model of large scale contracts established by Bush and the OSRD. Second, the military recognized the importance of incorporating the scientific community in military research and development. The relationship between scientists and the military did not revert to the prewar model of government labs with its clear subordination of scientists to uniformed military leaders. Instead, the individual services created a series of smaller OSRD organizations to improve their internal research.

Bush was the organizer of wartime science, personal adviser to President Roosevelt, and the prophet of a new relationship between government and science. His vision of the relationship between government and science made him one of the founding fathers of the modern Military-Industrial Complex.

Colin F. Jackson

See also: Manhattan Project; Office of Scientific Research and Development (OSRD); Research and Development/Think Tanks/University Research; Roosevelt, Franklin Delano; Truman, Harry S.; United States Navy; Weapons, Air; Weapons, Land; Weapons, Sea; Weapons, Nuclear; World War II

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CARTER, JAMES EARL, JR. (1924–)

U.S. Navy officer, Democratic Party politician, and president of the United States (1977–1981). Born on October 1, 1924, in Plains, Georgia, James "Jimmy" Carter was raised on his family's farm. He graduated from the U.S. Naval Academy in 1946, pursued graduate work in physics at Union College, and spent seven years as a naval officer, working under Vice Admiral Hyman Rickover in the nuclear submarine program. Carter eventually served on the nuclear submarine *USS Seawolf.*

Carter left the Navy and returned to Georgia upon his father's death in 1953 to run the family farm, eventually building it into a large and prosperous enterprise. He entered state politics in 1962, serving two terms in the Georgia Senate. He also became a born-again Christian with a profound commitment to his Baptist faith. Carter was elected governor of Georgia in 1970.

In December 1974, amid the fallout of the Watergate scandal and an economy in a deep recession, Carter decided to run for the presidency. He secured the Democratic Party nomination and won the presidential election of November 1976. His first major act as president in January 1977 was to extend a pardon to draft evaders, military deserters, and others who had violated the Selective Service Act from 1964 to 1973 during America's controversial Vietnam War. The psychic and political wounds from Vietnam had yet to heal, and the nation still remained deeply divided over its involvement in the war and suspicious of the government after Watergate. Carter's move generated controversy among the public and elicited criticism from Congress, which helped contribute to a rift with Congress that only widened during his presidency.

Carter was unable to inspire public confidence or to fulfill his election promise to end stagflation (rampant inflation coupled with economic recession). To solve the ongoing energy crisis, a contributory factor to economic stagnation, Carter proposed energy taxes, limits on



U.S. President Jimmy Carter stands between Egyptian President Anwar Sadat (left) and Israeli Prime Minister Menachem Begin (right) after the signing of the Camp David Accords on September 17, 1978. Forged during an unprecedented 13-day negotiating session at the presidential retreat at Camp David, Maryland, the accords established a framework for peace between Israel and Egypt. The formal agreement, the Camp David Peace Treaty, was signed on March 26, 1979. (Jimmy Carter Library)

imported oil, and greater reliance on domestic sources of energy—plans largely stymied by Congress. The Carter administration also deregulated the nation's airline industry, passed major environmental legislation to encourage cleanup of hazardous waste sites, revamped the civil service, and created the Department of Education.

In the arena of the Military-Industrial Complex, Carter's efforts often received severe criticism. He decided to cut military spending, and started with a number of high-cost and high-profile weapons systems. He not only decided to remove nuclear weapons from South Korea, but also cut the defense budget by $6 billion, slashing programs such as the B-1 *Lancer* Bomber Program, the M-X missile systems, and numerous ship and land weapons programs.

Carter criticized other nations for human rights abuses, often linking economic and military cooperation to a country's commitment to the American ideals of freedom and equality. Such disapproval of the Soviets' treatment of political dissidents undermined détente and delayed SALT II (Strategic Arms Limitation Treaty) negotiations, which finally resulted in a 1979 treaty never ratified by Congress because of the

Soviet invasion of Afghanistan that same year. In response to the Afghan situation, the administration enunciated the Carter Doctrine, which committed the United States to protecting oil interests in the Persian Gulf. Carter also imposed a controversial and ineffective American grain embargo on the Soviets and ordered a U.S. boycott of the 1980 Olympic Games in Moscow. In January 1979 he also extended full diplomatic recognition to the People's Republic of China (PRC), effectively cutting most American ties with Taiwan.

Carter invited Egyptian President Anwar Sadat and Israeli Prime Minister Manachem Begin to Camp David in September 1978. After two weeks of intense negotiations, a deal was brokered for a peace treaty between Israel and Egypt and signed on March 26, 1979. The Camp David Accords represented a true diplomatic breakthrough, provided a framework for future Middle East peace initiatives, and helped temporarily bolster Carter's sagging popularity. In September 1977 he signed the controversial Panama Canal Treaties, ceding the canal to Panama and ensuring the neutrality of the waterway. Congress narrowly ratified the treaties in March 1978, but Carter came under additional fire for having ceded an important U.S. strategic interest.

The 1979–1980 Iranian hostage crisis ultimately doomed Carter's presidency. In the wake of Iran's ouster of U.S.-supported Mohammad Reza Shah Pahlavi, Iran established an Islamic regime headed by Ayatollah Ruhollah Khomeini. In November 1979 radical Iranian students seized the U.S. embassy in Tehran, taking 70 Americans hostage. Carter's diplomacy was unable to diffuse the crisis, and a failed April 1980 rescue attempt paralyzed Carter as a leader and contributed to his defeat in the November 1980 presidential election. His secretary of state, Cyrus R. Vance, resigned in protest against the operation. The hostages were released on January 20, 1981, after 444 days in captivity, as soon as Ronald Reagan was sworn in as president.

Upon leaving the White House, Carter continued a vigorous public life, acting as a mediator in international conflicts, working on the eradication of poverty, promoting human rights, and writing books and memoirs. He was awarded the Nobel Peace Prize for his accomplishments in 2002.

Josip Moćnik

See also: China, People's Republic of; Israel; Strategic Arms Limitation Talks and Treaties (SALT I and SALT II)

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CENTRAL INTELLIGENCE AGENCY (CIA)

Primary U.S. intelligence agency during the Cold War. Congress established the Central Intelligence Agency (CIA) in July 1947 to centralize and coordinate intelligence and espionage activities in reaction

to the deepening Cold War. Initially, the CIA's main focus was on the Soviet Union and its satellites. The CIA assumed primary responsibility not only for intelligence collection and analysis but also for covert actions. Its origins can be traced to the Office of Strategic Services (OSS) of World War II that had conducted espionage, intelligence analysis, and special operations from propaganda to sabotage. The main impetus for the creation of the CIA came from the investigation into Japan's surprise attack on Pearl Harbor in December 1941. President Harry S. Truman vowed to prevent a repetition of this massive intelligence failure.

On 22 January 1946, Truman signed an executive order forming a Central Intelligence Group (CIG) modeled after the OSS. Its mission was to provide analysis and coordination of information about foreign threats and to undertake advantageous policy initiatives. Truman signed the National Security Act on 26 July 1947, replacing the CIG with the new CIA as an independent agency operating within the Executive Office.

Truman appointed legendary OSS spymaster William "Wild Bill" Donovan to serve as the first CIA director. The CIA's primary function was to advise the National Security Council (NSC) on intelligence matters and make recommendations for coordination of intelligence activities. To accomplish these goals, the CIA was to correlate, evaluate, and disseminate intelligence and perform other services in accordance with NSC directives. Because Congress was vague in defining the CIA's mission, broad interpretation of the act provided justification for subsequent covert operations, although the original intent was only to authorize espionage. The CIA director was responsible for reporting on intelligence activities to Congress and the president. Power over the budget and staffing only of the CIA meant that no director ever exerted central control over the other twelve government entities in the U.S. intelligence community.

Known to insiders as "the Agency" or "the Company," the CIA consisted of four directorates. The Directorate of Operations (DO) supervised official and nonofficial agents in conducting human intelligence collection, covert operations, and counterintelligence. The DO was divided into geographic units and also contained the Center for Counterterrorism. The Directorate of Administration managed the CIA's daily administrative affairs and housed the Office of Security (OS). Created in 1952, the Directorate of Intelligence conducted research in intelligence sources and analysis of the results.

It produced the "President's Daily Brief" and worked with the National Intelligence Council in preparing estimates and studies. The Directorate of Science and Technology, created in 1963, was responsible for development and operation of reconnaissance aircraft and satellites, operation and funding of ground stations to intercept Soviet missile telemetry, and analysis of foreign nuclear and space programs. It also operated the Foreign Broadcast Information Service (FBIS), which monitored and analyzed all foreign media outlets.

During its first years, the CIA had difficulty prevailing in bureaucratic battles over authority and funding. For example, the State Department required CIA personnel abroad to operate under a U.S. ambassador. Walter Bedell Smith, who replaced Donovan in 1950, was an effective director, but the CIA's power increased greatly after Allen W. Dulles,

brother of Secretary of State John Foster Dulles, became director in 1953. An 80 percent increase in the agency's budget led to the hiring of 50 percent more agents and a major expansion of covert operations.

The CIA played a key role in the overthrow of allegedly radical governments in Iran in 1953 and Guatemala in 1954. With the advice of CIA operative Edward G. Lansdale, Philippine Secretary of National Defense Ramon Magsaysay during 1950–1954 crushed the Hukbalahap uprising in his country. CIA agents in South Vietnam infiltrated the Michigan State University Advisory Group that trained police and administrators during 1955–1962 as a basis for nation building. In Laos, the CIA operated Air America and supported rightist politicians, while Donovan, who became U.S. ambassador to Thailand, organized Thai paramilitary units to fight communist forces in neighboring countries.

President John F. Kennedy lost confidence in the CIA after the disastrous Bay of Pigs invasion, which failed to oust Cuba's Fidel Castro in 1961. The CIA nonetheless continued to devise imaginative but somewhat improbable schemes to assassinate or discredit Castro, efforts suspended during the Cuban Missile Crisis. In 1961, however, a Soviet military intelligence (GRU) officer began providing the CIA with information on Soviet strategic capabilities, nuclear targeting policies, and medium-range ballistic missiles that would prove critical in the 1962 Cuban Missile Crisis. The CIA also penetrated the Soviet Foreign Ministry, the Defense Ministry and General Staff, the GRU, and the Komitet Gosudarstvennoi Bezopasnosti (KGB). But its covert activities—especially its operations to kill Castro and its involvement in the murders of South Vietnam's Ngo Dinh Diem and later the Congo's Patrice Lumumba—soon caused much of the world community to view the agency as a sinister force. Although the agency instigated a rebellion in Indonesia that failed to topple Sukarno's regime in 1958, claims that it engineered his ouster in 1965 were false.

As direct American military action in Indochina grew, covert operations became less important, but by 1968 they witnessed a resurgence in the Phoenix Program that called for assassination of communist operatives. Debate continues over CIA involvement in the 1970 coup in Cambodia but not on its role in ousting Chile's Salvador Allende in 1973.

In 1975 public revelations of CIA assassination plots and an illegal operation to spy on American citizens protesting the Vietnam War led to the creation of the President's Intelligence Oversight Board as well as an Intelligence Committee in each house of Congress. In 1977 President Jimmy Carter increased oversight of the CIA and reduced its budget but reversed course after the 1979 Soviet invasion of Afghanistan. Meanwhile, the CIA had failed to predict the 1979 rebellion overthrowing Mohammad Reza Shah Pahlavi of Iran.

During the presidency of Ronald Reagan, the CIA used its renewed power and clout to undermine communist regimes worldwide, providing support for Afghan rebel forces that included Osama bin Laden. Ignoring statutory limits, the CIA also participated in the secret sale of arms to Iran and used the proceeds to fund covert actions against Nicaragua's leftist government. In 1991 Congress passed a new oversight law to prevent another Iran-Contra Affair.

In 1991, the CIA correctly forecast a coup against Soviet leader Mikhail

Gorbachev. But the sudden collapse of the Soviet Union beginning in August 1991 came as a complete surprise. Two-and-a-half years later, in February 1994, the arrest of agent Aldrich H. Ames for selling secrets for many years to the Soviets and compromising operatives provided critics with more evidence to back charges that the CIA had prolonged rather than helped to win the Cold War.

James I. Matray

See also: Carter, James Earl, Jr.; Cuban Missile Crisis; Kennedy, John Fitzgerald; Reagan, Ronald Wilson; Truman, Harry S.; Vietnam War

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CHENEY, RICHARD B. (1941–)

Legislator, administrator, businessman, secretary of defense (1989–1993), and vice president of the United States (2001–2008). Richard "Dick" Cheney was born on January 30, 1941, in Lincoln, Nebraska. When he was young, his family moved to Casper, Wyoming, where he grew up. He earned BA and MA degrees from the University of Wyoming in 1965 and 1966, respectively. He undertook further studies at the University of Wisconsin, Madison, before departing for Washington, D.C., as a congressional fellow in 1968.

In 1969 Cheney took a post in the U.S. Office of Economic Opportunity. He soon caught the eye of the White House, and in 1971 he became a staff assistant for President Richard Nixon. From there Cheney quickly moved up to become assistant director of the Cost of Living Council, a post he held until 1973. In 1974 he was hired to be deputy assistant to President Gerald R. Ford. In 1975 Cheney became White House chief of staff, where he remained until 1977.

In 1978 Cheney was elected to the U.S. House of Representatives as Wyoming's sole congressman. He was elected to five additional terms and became a respected and influential legislator in the process. Tapped by President George H. W. Bush to become secretary of defense, Cheney assumed that post in March 1989. He delegated much responsibility for the daily internal workings of the Pentagon to his deputy, Donald J. Atwood Jr. Cheney preferred to handle the larger, more public aspects of the job himself. In 1989 he selected General Colin L. Powell as chairman of the Joint Chiefs of Staff. The choice proved the right one when Iraq invaded Kuwait in August 1990, precipitating the Persian Gulf War. Cheney and Powell helped engineer a masterful international military coalition—backed by the United Nations (UN)—that swiftly defeated Iraqi forces and liberated Kuwait in February 1991. Casualties among coalition forces were extraordinarily light.



White House chief of staff Dick Cheney (left) listens intently to President Gerald Ford in the Oval Office on November 10, 1975. Cheney, the youngest person ever to serve as chief of staff at the time, replaced Donald Rumsfeld. (Gerald Ford Library)

Indeed, the Persian Gulf War made Cheney and Powell household words and brightened both men's political stars.

After Bush was voted out of office in November 1992, Cheney joined the American Enterprise Institute as a senior fellow. In 1995 he became president and chief operating officer of the Haliburton Oil Company, a major player in the international petroleum market. In 2000 Republican presidential candidate George W. Bush selected Cheney as his vice presidential running mate. Bush and Cheney were sworn into office after a contentious and disputed election in January 2001. Cheney is said to wield enormous influence in the Bush administration, but after the September 11, 2001, terrorist attacks, Cheney has kept an exceedingly public low profile.

Paul Pierpaoli Jr.

See also: Bush, George Herbert Walker; Bush, George Walker; Persian Gulf War I

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CHINA, PEOPLE'S REPUBLIC OF (PRC)

The world's most populous nation, the People's Republic of China (PRC) is a large Asian nation with an estimated 2008 population of 1.3 billion. It covers a little more than 3.705 million square miles, just slightly smaller than the

United States, and shares common borders with many states. To the north it is bordered by Russia and Mongolia; to the south by the South China Sea, Vietnam, Laos, Myanmar (Burma), India, Bhutan, and Nepal; to the west by Tajikistan, Kyrgyzstan, Kazakhstan, Afghanistan, and Pakistan; and to the east by the Democratic People's Republic of Korea (DPRK, North Korea) and the Yellow, East China, and South China Seas. During the Cold War period, the PRC promulgated several initiatives that led to its emerging from this period in a far more consolidated condition than the Soviet Union. The PRC also developed more flexible external policies, not only with a strong focus on its relations with the two superpowers but also involving linkages with developing nations. By the late 1960s the PRC had become a significant player in the international arena. Even as the PRC consolidated internally and sought to secure its borders, it positioned itself for a larger role in Asia and beyond.

The PRC officially came into existence following the communist victory in the Chinese Civil War (1945–1949). In the United States the decision was to not get involved directly, although the policy was to support our World War II ally Chiang Kai Scheck. The decision was based on the calculation that the Nationalists (under Chiang) could prevail against the Communists (under Mao), and direct U.S. involvement was unnecessary. Further, the Truman administration did not want to enter into another protracted conflict on the heels of World War II.

On October 1, 1949, the chairman of the Central People's Administrative Council and leader of the Chinese Communist Party (CCP), Mao Zedong, proclaimed the PRC. Zhou Enlai became premier and foreign minister. The Soviet Union and its satellites immediately recognized the PRC, followed later by Burma, India, and (on January 6, 1950) Great Britain. The Nationalists were expelled from the Chinese mainland and found refuge on Formosa (Taiwan).

Domestically the PRC followed varied political and economic polices, combining considerable centralized political control with an increasingly decentralized market economy in the final stages of the Cold War. Helping to drive the Chinese economy was its burgeoning population, which more than doubled between 1945 and 1991. At the end of the Cold War, China contained nearly 1.1 billion people.

Despite the ideological rivalry with the United States, the CCP tried to convey its message to the American public through progressive writers such as Edgar Snow, Jack Belden, William Hinton, Agnes Smedley, and others even before it came to power in 1949. Nevertheless, with the growing influence of the so-called China Hands and the China Lobby in the United States during the 1930s and 1940s, American administrations supported Jiang Jieshi's rabidly anticommunist Guomindang (GMD, Nationalist) government.

This and the Korean War (1950–1953) set the stage for a Cold War freeze between the PRC and the United States that lasted for nearly 30 years. The situation was compounded by a series of restrictive trade policies enacted by the United States. As the chances of building understanding with the United States during the last years of the Chinese Civil War declined—despite the U.S. diplomatic missions of General Patrick Hurley and General George C. Marshall—from

1949 onward the PRC looked to the Soviet Union for support.

During and after the Korean War, U.S. trade embargoes on the PRC, troop deployments to East Asia, and security alliances such as the Southeast Asia Treaty Organization (SEATO) along the peripheries of the PRC made the Chinese even more reliant on the Soviet Union. The 1950s saw massive Soviet arm sales, economic aid, and technical assistance to the PRC. After the United States and the Republic of China (ROC, Taiwan) signed a mutual security treaty in 1954, cooperation between the PRC and the Soviet Union increased again.

The communist Chinese and the Soviets differed on several political and international issues, however. When Soviet leader Josef Stalin cautioned Mao against an open break with the Nationalists, PRC leaders felt slighted by the superior attitude with which the Soviets treated the PRC and other socialist states. The leaders of the PRC and the Soviet Union disagreed sharply over who should lead the world communist movement following Stalin's death. The CCP also sharply criticized the Soviet leadership for its de-Stalinization campaign and for the policy of peaceful coexistence with the United States. The Soviet handling of the 1956 Hungarian Revolution and the 1962 Cuban Missile Crisis and its neutral position during the 1962 Sino-Indian border clash greatly exercised the Chinese leadership. Closer to home, Soviet proposals for building a joint PRC-Soviet Union nuclear submarine fleet and the construction of long-wave radio stations along the Chinese coast were seen by the CCP as infringements on its independence and further steps toward full PRC integration into the Soviet orbit. Likewise, the PRC refused to adhere to the 1963 Partial Test Ban Treaty (PTBT) signed by the United States, the Soviet Union, and Great Britain, arguing that the treaty would impede the PRC's own nuclear program and make the nation all the more reliant on the Soviet Union.

The Sino-Soviet split, which began in earnest in August 1960, along with repeated Soviet-Chinese border clashes led the PRC to distance itself from the two superpowers. The PRC leadership strongly denounced both of them, accusing the Americans of capitalist imperialism and the Soviets of socialist imperialism. This led the Chinese leadership to identify with nations in the developing world, especially countries in Asia and Africa. In 1964 China exploded its first nuclear weapon and became the world's fifth nuclear power, after the United States, the Soviet Union, Great Britain, and France. The government communiqué issued on the occasion, while declaring a "no first-use principle," stated that nuclear weapons were necessary to protect the nation "from the danger of the United States launching a nuclear war." The PRC then developed long-range ballistic missiles for countering threats from either the United States or the Soviet Union.

In 1954 China announced a good neighbor policy with the aim of building bridges along its periphery to counter what it saw as American encirclement efforts. In the mid-1950s the PRC, along with other Asian countries, also promulgated "Five Principles of Peaceful Coexistence," which called for mutual respect of sovereignty and territorial integrity, mutual nonaggression, noninterference in each other's internal affairs, and economic equality. By the 1960s the Chinese had signed border agreements

with Mongolia, Nepal, Afghanistan, Burma, and Pakistan. After the Korean War, however, China's military engagements were mainly border disputes, such as in 1962 with India, in 1969 with the Soviet Union, and in 1979 with Vietnam.

During the 1970s, prompted by increasing threats from the Soviet Union, the PRC normalized its relations with the United States under the policy of *yitiao xian* (following one line). U.S. Secretary of State Henry Kissinger secretly visited China in 1971, setting the stage for the Sino-American rapprochement. The following year President Richard Nixon made a historic visit to Beijing, opening the way for the normalization of relations. The Americans granted formal recognition to the PRC in 1978, and in 1979 both nations exchanged diplomatic legations.

Despite their differences on issues such as democracy, human rights, the environment, and labor standards, the United States and China worked together in opposing the Soviet Union's 1979 invasion of Afghanistan. The 1979 trade agreement between the United States and the PRC granting most-favored nation (MFN) status to each other went a long way in fully normalizing relations in the economic sphere. U.S. Defense Secretary Harold Brown's visit to Beijing in early 1980 opened the prospects for American arm sales to the PRC, although President Ronald Reagan's 1982 decision to sell arms to the ROC put any such agreement on indefinite hold.

While the United States now recognized the PRC as the legitimate government of the Chinese people, the status of Taiwan remained unclear. A triangular strategic ambiguity thus came to exist in the relationship among the United States, the PRC, and Taiwan. The PRC has codified, as its minimalist policy toward Taiwan, the "three nos": no deployments of foreign troops on Taiwan, no independence movement, and no nuclear weapons on Taiwan. While the 8,000 U.S. troops stationed on Taiwan were withdrawn, the PRC's threats to use force against Taiwan and concerted military modernization efforts with a Taiwanese focus not only increased U.S. arm supplies to the island but also prompted the passage of the 1979 Taiwan Relations Act by the U.S. Congress. In the late 1970s the PRC proposed its formula of one country, two systems, that is, one China and two different systems—socialist and capitalist—for eventual reunification of the PRC. This formula was also applied to Hong Kong and Macao in Chinese negotiations with the British and Portuguese.

The U.S.-Chinese rapprochement also had an impact on the PRC's relations with Japan, Southeast Asia, and Western Europe. In August 1978 the PRC and Japan signed a peace and friendship treaty. The PRC leadership was highly critical of Japan's occupation of Manchuria and much of coastal China during World War II, the Nanjing massacre, Japanese history textbooks glorifying Japanese militarism, and visits by Japanese prime ministers to the Yasukuni Shrine in Tokyo to honor the war dead. China badly needed Japanese financial and technological assistance, however, especially during its economic reform and modernization efforts that had begun in the late 1970s. The PRC therefore granted incentives to Japan, as well as to Taiwan and the Republic of Korea (ROK, South Korea), to locate industry in China.

There was a thaw in Sino-Soviet relations after Mikhail Gorbachev came to

power in the Soviet Union in 1985. China conveyed to the Soviet Union that rapprochement was possible if the Soviets were to withdraw their troop concentrations from the Sino-Soviet border and Mongolia, cease their support of Vietnam, and pull out of Afghanistan. After 1989 Sino-Soviet relations continued to warm as some of the Chinese demands were met. Other demands were realized as a result of the dissolution of the Soviet Union in 1991.

In the domestic political, social, and economic spheres, the PRC initially implemented a strong command-style socialist system with the CCP as the driving political force. During the Cold War, the CCP held eight national congresses, from the Seventh Congress in April 1945 to the Fourteenth Congress in October 1992. CCP membership grew from an estimated 1.2 million in 1945 to 39.6 million during the Twelfth Congress in 1982. Still, CCP membership was small compared to the PRC's population. Three generations of top political leaders existed during the CCP's Cold War history: Mao, Zhou, and Zhu De in the first generation; Deng Xiaoping and Chen Yun in the second generation; and Jiang Zemin, Li Peng, and Qiao Shi in the third generation.

Although there were eight other political parties, their role was quite limited. The PRC utilized competing political organizations and their leaders in the early years of postwar reconstruction. A united front of all Chinese parties was reflected in the work of the Chinese People's Political Consultative Conference, which was formed in September 1949. It held six conferences between 1949 and 1983, although the CCP was clearly the only party that wielded political and governmental control.

Four constitutions were adopted (1954, 1975, 1978, and 1982) by the National People's Congress (NPC), the highest executive body of state power in the PRC. Six NPCs were held between 1954 and 1987. Delegates to the NPC are elected for a period of five years. They in turn elect the president, vice president, and other high-ranking state functionaries. The State Council is the executive body of the PRC and includes the premier, vice premiers, councilors, ministers, and others. A similar dual political structure is reflected at the provincial levels of the country. There are no direct national elections in the PRC, although at the village and county levels direct elections for some local officials were gradually phased in after the end of the Cold War.

During the Cold War several political campaigns were launched, which set the PRC's political system apart from other socialist countries and indicated its willingness to experiment. The CCP carried out a campaign to suppress counterrevolutionaries between 1951 and 1953, effectively ending opposition from remnant Nationalists, feudal lords, and other dissident groups. This period also coincided with the campaign against corruption among government officials.

In May 1956 the Hundred Flowers Movement was launched, inviting differing views from Chinese intellectuals. A barrage of criticism, however, led to the end of this program in the Anti-Rightist campaign of 1957. As China crushed the Khampa Rebellion in Tibet in 1959, sending the Dalai Lama to exile in India, the Soviets withdrew nearly 10,000 of their engineers and technicians in the latter part of 1960. This coincided with the disastrous failure of the Great Leap

Forward, a massive program of nationwide industrialization launched by Mao in 1958 and sharply criticized by Defense Minister Peng Dehuai at the 1959 Lushan Conference.

The 1960s brought more experiments. In May 1963 Mao began the Socialist Education Campaign to counter the growing influence of capitalism, end the corrupt practices of CCP cadres, and inculcate the idea of self-sacrifice among the population. The ultra-leftist Cultural Revolution (1966–1976) was launched by Mao via a 16-point program that encouraged Red Guards to "bombard the headquarters" of CCP leaders and take out those following the "capitalist road." Many CCP leaders, including Liu Shaoqi, Peng Zhen, and Luo Ruiqing, were summarily purged from the party and zealously persecuted.

Although Lin Biao was anointed as Mao's heir apparent, he was killed—probably by design—in a 1971 plane crash in Mongolia. His crime was an alleged coup attempt against Mao. An anti-Lin Biao rectification campaign was launched from 1971 to 1973. The country underwent turmoil following the deaths in 1976 of Zhou in January and Mao in September, when several demonstrations were held in Tiananmen Square in Beijing, supposedly mourning Zhou but also challenging the political ascendancy of the radical Gang of Four. These leftist extremists, who included Mao's wife Jiang Qing and three Shanghai-based Communist Party members—Wang Hongwen, Zhang Chunqiao, and Yao Wenyuan—initially tried to implement strongly ideological policies harking back to the height of the Cultural Revolution. Within weeks of Mao's death in September 1976, Hua Guofeng, who became premier in April 1976, ordered the arrest of the Gang of Four, who were tried and convicted of antiparty activities in 1981. Deng, who was rehabilitated a fourth and final time, introduced pragmatic policies of "seeking truth from facts" and extensive economic reforms in 1978.

In response to rising prices, increased alienation among the people, and growing corruption among the ranks of the CCP cadre, students, peasants, and workers launched prodemocracy protests leading to the Tiananmen Square Incident of June 4, 1989, which had been triggered by the death that April of a reformist former CCP chairman, Hu Yaobang, whose sympathies with previous prodemocracy groups had caused his expulsion from the CCP. The crisis resulted in scores of deaths, the resignation of Deng as the chairman of the Central Military Commission, and the appointment of Jiang in his place. An antibourgeois liberalization campaign was launched after this incident.

In the economic arena for most of the Cold War, China followed Soviet-style centralized Five-Year Plans designed to guide its economic and modernization activities. Given the backwardness and war-ravaged nature of the economy in 1949, when there was rampant and disastrous inflation, the PRC leadership undertook comprehensive measures in the reconstruction of the country. In the industrial sphere, private enterprise was encouraged initially to revitalize production, and 156 major projects were begun with Soviet assistance. The PRC established nearly 4,000 state-owned enterprises between 1949 and 1989, some allowing for the gradual incorporation of private enterprise in joint firms or state enterprises after paying interest on the private shares.

In 1958 the Great Leap Forward was launched in part to increase iron and steel production by mobilizing the enthusiasm of the masses. State-controlled industrialization, the construction of transport and telecommunication networks, and trade with other socialist countries based on import substitution have all been part of the Maoist self-reliance model of economic development at various times. While these endeavors greatly enhanced the PRC's economic prowess, they also led to waste and increased bureaucratization. In 1975 China initiated a Four Modernizations Program of opening up to the outside world. The four modernizations dealt with agriculture, industry, science and technology, and defense, in that order of priority. It also adopted special policies and flexible measures to attract foreign investments and technology sharing and established special economic zones in the coastal regions for wholly owned or joint enterprises to promote exports.

In agriculture the PRC immediately initiated land reform with the Agrarian Law of 1950. The regime seized land from landlords and redistributed it to the landless, a process largely completed by 1952. Through this reform, some 300 million peasants acquired 46 million hectares of land. By 1953, after the end of the Korean War, the PRC introduced mutual aid teams and gradually imposed agricultural collectivization. Following the Great Leap Forward, these farming co-ops were converted into People's Communes, combining industry, agriculture, trade, education, and the militia. More than 20,000 such communes were established, although declining production and natural calamities limited their effectiveness.

In the post-1978 reform period, the collectivization and communalization process was reversed, beginning with the institution of household land contracts, rural industrialization, and incentives to private enterprises. The main features of the new reforms included contracting land to private households, which would control land use; increasing agricultural production; raising farmers' income; shifting to commodity agriculture; forming conglomerates; encouraging private enterprises to privately hire labor; and competing in international markets.

Today China represents both the greatest potential and the greatest threat to the United States. In an economic sense, an evolving China may eventually become part of the global capitalist system, reform to include democracy and establish a better record of human rights and freedoms. However, many pundits are cautious. With regard to American military policy, China is seen as a potential competitor. The American military-industrial complex is busy preparing for potential competition with the Chinese, who are a nuclear power with incredible potential for military competence. Specifically, the Department of Defense is concerned with China's nuclear missile capabilities as well as their quest for an ocean-going blue water nuclear navy. Although late to start, Chinese defense spending coupled with economic expansion may lead to a new form of cold war and arms race.

Srikanth Kondapalli

See also: Korean War; Nixon, Richard Milhous; Reagan, Ronald Wilson; Soviet Union (USSR)

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CLINTON, WILLIAM JEFFERSON (1946–)

American politician and president of the United States (1993–2001). William "Bill" Jefferson Clinton was born William Blythe in Hope, Arkansas, on August 19, 1946. His early life was characterized by hardships and struggles that formed his character and attitudes throughout his public life. His biological father, William Blythe III, was killed in an automobile accident prior to his son's birth, and young Blythe was raised by his mother, Virginia Kelley. His mother's marriage to Roger Clinton prompted William's adoption and changing of his name to William Clinton just prior to starting secondary school.

Clinton was a bright and astute student who hoped to pursue a medical career until he met President John F. Kennedy on a Boys' Nation trip to Washington, D.C. This experience led Clinton to focus his future career aspirations on public service and politics. Kennedy's charisma and his liberal outlook on the place of the national government in the lives of the American people molded Clinton's own political outlook.

Clinton received an academic scholarship to attend Georgetown University in Washington, D.C., where he earned a bachelor of science degree in international affairs. During his time at Georgetown he spent a year assisting Arkansas Senator J. William Fulbright. Clinton's credentials as a progressive Democrat and social liberal were further developed under the tutelage of this prominent senator. In 1968 as the United States was being transformed by social changes and wracked by protests against the Vietnam War, Clinton was selected as a Rhodes Scholar. He spent 1968 to 1970 studying at Oxford University. On his return to the United States, he enrolled in the Yale University School of Law.

While studying at Yale, Clinton met his future wife Hillary Rodham, who shared many of the liberal and progressive ideas that would become the hallmark of Clinton's political career. They were married in 1975.



U.S. President Bill Clinton brings Israeli Prime Minister Yitzak Rabin (left) and Palestine Liberation Organization chairman Yasir Arafat (right) together for a handshake after signing a historic Israel-Palestine Liberation Organization agreement at the White House on September 13, 1993. (Reuters/Gary Hershorn/Archive Photos)

Clinton's initial foray into national politics occurred shortly after receiving his law degree. In 1974 he was defeated in a congressional race for Arkansas's Third District. After a brief career as a professor at the University of Arkansas (1974–1976), Clinton was named state attorney general and was elected governor in 1978—at age 32, the youngest governor in the nation. In 1980 he suffered a humiliating reelection defeat, caused by widespread opposition to an automobile licensing tax. Clinton's resiliency and commitment were apparent when he successfully regained the Arkansas governorship in 1982, a post he held until his election as president in 1992.

In Summer 1992, Clinton secured the Democratic Party nomination to run against incumbent President George Herbert Walker Bush, a Republican. Clinton was bedeviled, however, by questions regarding his marital fidelity and the emerging Whitewater real estate scandal in Arkansas. He benefited from an economic downturn and businessman H. Ross Perot's Independent Party candidacy.

Clinton won the November 1992 election with a minority of the popular vote. During his first term he balanced domestic issues and foreign policy in a highly effective manner. At home he lobbied unsuccessfully for major health care reform, including coverage for those

without health insurance. He also demanded that the Department of Defense remove all restrictions pertaining to homosexuals serving in the military. The ensuing firestorm forced Clinton to institute the "Don't Ask, Don't Tell" policy, which failed to satisfy either side. Clinton was successful, however, in raising taxes and reducing expenditures to reduce—and then eliminate—the federal deficit and in pushing through major welfare reforms. In foreign affairs he promoted free trade agreements, brokered peace efforts in the Middle East, removed U.S. military personnel from Somalia, and restored diplomatic relations with the Socialist Republic of Vietnam.

The congressional elections of 1994, however, brought Republican majorities in both the House and Senate. The Republicans' "Contract with America," crafted chiefly by Republican Congressman Newt Gingrich, called for reducing the role of government and continuing the conservative policies of Ronald Reagan and was a thorough repudiation of Clinton's presidency. A standoff between Clinton and congressional leaders led to a federal government shutdown in November and December 1995.

In the 1996 presidential campaign, Clinton promised a tough approach to crime, supported welfare reform, called for reducing the federal deficit, and insisted on the need to continue affirmative action programs. Robert Dole, a respected senator and World War II veteran, was the Republican candidate. The booming U.S. economy and suspicions regarding the Republicans' agenda ensured a respectable Clinton victory. He was the first Democrat to secure a second presidential term since Franklin D. Roosevelt.

In 1997 Clinton submitted to Congress the first balanced budget in nearly three decades. The cooperation of congressional Republicans and significant compromises by Clinton generated budget surpluses during the remainder of his presidency. By decade's end, the American economy was more robust than at any time since the mid-1960s, unemployment stood at a historic low, and the stock market had reached new highs.

In addition to important domestic accomplishments, Clinton responded effectively to a series of international crises. In 1998 he authorized air strikes in Iraq, and in 1999 he prodded a North Atlantic Treaty Organization (NATO) response to genocide conducted by Serbs against Albanians in Kosovo. He also worked mightily to secure a resolution to the Israeli-Palestinian conflict, a major Clinton administration goal.

Clinton constantly prodded all sides to negotiate and come to an agreement, but his efforts were stymied by uncooperative leaders and events. The assassination of Israeli Prime Minister Yitzhak Rabin in November 1995 and continued terrorist attacks by Islamic groups had brought the election of hard-line Prime Minister Benjamin Netanyahu, who promised not only to bring peace and security but also not to return any of the occupied territories. He now delayed in carrying out troop withdrawals in accordance with the 1993 Oslo Accords, in which Israel had agreed to give up land for peace, while the Palestinian side failed to crack down on terrorism. He demanded that Yasser Arafat and the Palestinian Authority (PA) move directly against the Hamas terrorist organization.

With tensions dramatically increasing, Clinton intervened directly and applied

pressure on both sides. In October of 1998 he succeeded in bringing together Netanyahu and Arafat at the Wye River estate in Maryland. Following days of difficult negotiations and sometimes bitter wrangling, Clinton secured agreement on what became known as the Wye River Accords. Israel agreed to withdraw from some additional 13 percent of West Bank territory, and the PA renounced the use of terrorism and agreed both to suppress it and to eliminate the weapons that the PA had stockpiled. The PA also agreed to halt the most virulent anti-Israeli propaganda.

Netanyahu returned to Israel, however, to find strong opposition from within his ruling Likud coalition to the additional territorial concession. He nonetheless carried out a partial withdrawal. Meanwhile, although the PA did crack down on militants, it failed to implement most of the provisions in the Wye River Accords, whereupon a month later Netanyahu suspended withdrawals.

Forced to call new elections, Netanyahu curried favor with the Israeli religious right, alienating many secular Israelis. In the ensuing May 1999 elections, Netanyahu was defeated by the Labor coalition known as One Israel headed by former Israeli Army chief of staff Ehud Barak.

Clinton reached out to Barak, whose premiership began with much promise but ended after only 17 months. Barak removed Israeli troops from southern Lebanon in May 2000, but negotiations with Arafat and the PA ran afoul of right-wing charges that he was making too many concessions. Clinton again set up a meeting in the United States. During July 11 to 24, 2000, Clinton hosted a summit at the presidential retreat of Camp David, Maryland. Despite generous concessions by Barak, the parties were unable to secure agreement, and a new wave of violence—the Second (al-Aqsa) Intifada—erupted. Clinton made one last try at the White House during December 19 to 23, 2000. Both his and Barak's terms were nearing their ends. The U.S. plan, apparently endorsed by Barak, would have ceded to the Palestinians some 97 percent of the West Bank and full Palestinian control of the Gaza Strip, with a land link between the two. Barak also agreed that Arab neighborhoods of East Jerusalem might become the capital of the new Palestinian state. Palestinian refugees would also have the right of return to the Palestinian state and compensation from a fund raised by international donors. These concessions were anathema to the Likud and other Israeli rightists, but in the end, despite heavy pressure from Clinton, Arafat rejected the agreement. Barak, who came under a storm of criticism for this process, was forced to step aside.

Clinton's second term was also marked by personal scandal and legal problems. Kenneth Starr, the independent counsel investigating Whitewater, leveled against the president charges of sexual misconduct and lying to a federal grand jury. He did not, however, ever find evidence of wrongdoing in the Whitewater deal. In September 1998 the U.S. House of Representatives passed two articles of impeachment against the president, but in early 1999 the Senate acquitted Clinton on both counts. In order to end the Whitewater investigation, Clinton agreed to a five-year suspension of his law license and a $25,000 fine.

After leaving the presidency, Clinton assisted his wife in her successful senatorial campaign in New York, opened his own office in Harlem in New York City,

and established a presidential library in Little Rock, Arkansas. He has also traveled extensively abroad and raised significant sums of money for charitable causes, including AIDS and, with former President Bush, tsunami relief.

James F. Carroll and
Spencer C. Tucker

See also: Bush, George Herbert Walker; Bush, George Walker; Israel; Kennedy, John Fitzgerald; North Atlantic Treaty Organization (NATO)

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COLD WAR

The Cold War was as much an ideological battle as it was a military struggle. Although the origins of the conflict can be traced as far back as the November 1917 Russian Revolution, the Cold War began to take form in late 1945. It did not formally end until December 1991. Simply put, the Cold War can de defined as a state of mutual hostility, distrust, and rivalry between the United States and the Soviet Union. This contest soon pitted the capitalist West and its allies around the world against the Communist-controlled East and its allies throughout the world. A large part of the Cold War "battle" involved competing political and economic ideologies. The capitalist West generally represented popularly elected, multiparty governments that supported individual rights and a free-market economy in which government control was limited. The emphasis was on individual initiative, personal and collective rights, and private property. While some pro-Western governments were in reality not very democratic, they usually subscribed to some form of capitalism. The Communist East advocated vastly different governmental and economic systems. Nearly all Communist regimes were controlled by a single political party, which exercised strict control over individual rights and political participation. Communist economies were tightly regulated by the central government, and most private property was forbidden. The idea of individual initiative was alien. Instead the emphasis was on collective collaboration among the mass population. Thus, the Cold War symbolized two completely different ways of life.

Although the Soviet Union and the United States never engaged in direct military action against one other, the Cold War was marked by a series of both small and large wars. These conflicts were fought in almost every corner of the world. In most cases the West backed one side while the East supported the other. In addition to the many small wars, the Cold War featured three major and prolonged conflicts: the Korean War (1950–1953); the Vietnam War (1946–1975); and the war in Afghanistan (1979–1989). The Cold War was also a period that witnessed a massive arms race and the rise of permanent and powerful defense industries. Many historians have pointed out that the Cold War "militarized" everyday life in both the East and West. The world's major powers spent trillions of dollars on large standing armies and advanced weaponry. And unlike more conventional

conflicts, which have fairly distinct beginning and end points, the Cold War endured for more than four decades. Each side was therefore obliged to arm itself to fight a large-scale, world-wide war for an indefinite period of time. Perpetual military readiness became Cold War watchwords.

Both national and international politics were affected by the Cold War. In many industrialized Western nations, the politics of anticommunism resulted in periodic civil liberty violations and over-zealous attempts to suppress or outlaw Communist or leftist organizations. As such, political freedom was sometimes diminished. Oftentimes Western nations—particularly the United States—supported repressive and undemocratic governments abroad so long as they were anticommunist. This was especially the case in the Developing World (Latin America, Africa, and Asia). In the Communist Bloc, the insistence on a singular political-economic philosophy brought with it periodic crackdowns against those who dared to think or act differently. Sometimes this manifested itself in internal repression, such as the People's Republic of China's (PRC) Cultural Revolution of the late 1960s. Other times it brought external repression, such as the Soviet Union's crushing of the 1956 Hungarian Revolution or the Prague Spring of 1968. Finally the process of decolonization was profoundly influenced by Cold War politics. Conflicting ideologies forced many newly independent countries to choose one system or the other—capitalism or communism. Doing so caused political instability, economic crisis, and even civil war in these fledgling nations.

In economic terms, the cost and consequences of the Cold War are almost impossible to calculate. The arms race and the need to maintain large, permanent military establishments cost trillions of dollars. Money spent on defense and weaponry was money taken away from social welfare programs, education, healthcare, and housing. As the arms race accelerated and defense budgets ballooned, inflation and economic stagnation became problematic in the West. In the East consumer goods and periodic food shortages plagued many Communist countries. The Vietnam War seriously harmed the American economy. And the Soviet war in Afghanistan contributed to an economic crisis and ultimately to the fall of the Soviet Union.

The Cold War was also witness to a world in which dozens of relatively small "proxy" wars were fought by surrogates of the United States and the Soviet Union. These conflicts resulted in constantly shifting national borders and changes in global and regional balances of power. They also resulted in millions of deaths and injuries. In spite of international bodies such as the United Nations (UN), the constant push-pull of Cold War geopolitics often impeded international cooperation. This meant that economic development efforts, disease eradication programs, antidrug campaigns, and even nuclear nonproliferation initiatives were weakened or stalled completely.

Cultural and social trends were far from immune to Cold War influences. Cold War themes were not just the subjects of movies, plays, novels, and television shows; they also gave birth to new genres (or categories) of cultural expression. Spy thrillers, for example, were born of the Cold War. Science fiction moved into entirely new areas as it dealt with the political and technological consequences of the period. Even music and

art reflected Cold War values. Music especially became linked with various Cold War peace movements, as demonstrated during the Vietnam War. At the same time, both sides in the Cold War engaged in propaganda through cultural expression. And censorship of "nonconforming" art forms was routinely practiced in both the East and the West, though it was far more prevalent in the East. The Cold War touched religion as well. Most communist regimes tried to stamp out organized religion by banning it or persecuting its followers. However, conservatives in both the Christian and Muslim faiths sought to fight atheistic communism by becoming more politically active. Some even became militant, sparking internal and external armed conflicts. In some Muslim nations the advent of theocracy—or religiously imposed government—began during the last quarter of the Cold War.

Ethnic lines tended to blur as a result of the Cold War, especially in the Communist Bloc. Nations like the Soviet Union and Yugoslavia in particular insisted on artificially incorporating many different and diverse ethnic groups. They were therefore forced to deemphasize or even abandon their languages, customs, and centuries-old traditions. Not even gender escaped the clutches of the Cold War. In the United States during the 1950s, for example, women and men were encouraged and even expected to fulfill very specific social roles in the belief that this would "immunize" the nation from communist influences. Women were expected to become ideal mothers and "housewives" and to forgo careers outside the home. Men were required to develop a career beyond the domestic sphere, as the solitary breadwinner.

Nuclear power, a by-product of World War II, came into its own during the Cold War. On the positive side, nuclear technology revolutionized healthcare, electrical power generation, and many of the hard sciences. On the downside, nuclear weapons, numbering in the tens of thousands by the end of the period, threatened the world with complete destruction. Nuclear power made all-out war among the major world powers suicidal. In that sense, some historians have argued, these weapons may have prevented World War III. By the late 1950s nuclear-powered submarines had revolutionized naval warfare and fundamentally altered defense strategies.

Rocket, satellite, and guided-missile technologies were also Cold War inventions. But they were also a two-edged sword. They provided for space exploration and gave rise to the Space Race but also made a nuclear war possible with the push of a button. This greatly increased the odds of an accidental nuclear exchange. As such, modern warfare became entirely impersonal and had the potential for unleashing a global holocaust in a matter of hours.

Computers, another Cold War technology, were used almost exclusively in military and medical applications just 25 years ago. By the end of the conflict, however, they had become common household appliances. In that sense, a technology originally designed for governmental and military purposes revolutionized human existence in less than one generation. Related to this, computerization and other electronic advances emerging from Cold War applications ushered in the era of instant communication. This development empowered the media (television in

particular) to reach every corner of the globe in just a few seconds.

The Cold War waxed and waned over its 46-year history. From 1945 to the early 1970s, the Cold War world was said to be bipolar. That is, the global balance of power was split rather evenly between the Western Bloc, dominated by the Americans, and the Eastern Bloc, led by the Soviets. As more nations decided to forge their own geopolitical strategies, however, the Cold War world became multipolar by the mid-1970s. As such, American and Soviet predominance weakened and global power became more diffuse. Moreover, East-West relations were marked by periods of relaxed tensions. These occurred in the late 1950s, the 1970s, and again in the mid-to-late 1980s. Though a major world war was averted, nothing better exemplifies the danger that was always part of the Cold War than the 1962 Cuban Missile Crisis, when the two superpowers came as close as they ever did to a full-blown nuclear war.

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See also: Arms Race; Cuban Missile Crisis; Korean War; Mutual Assured Destruction (MAD); Space Race; Strategic Defense Initiative (SDI); Vietnam War; USSR

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COUNTERINSURGENCY (COIN)

Since the dawn of history, states have conducted campaigns against insurgents but until fairly recently an overarching theory was lacking. Over time the strategy and tactics of counterinsurgency have reflected the changing constitutional nature of states, the emergence of mass politics, nationalism, ethnic identification, and shifting political norms and legal constraints. The natures of insurgencies have dictated the strategy and tactics of insurgents, ethnic or religious, anti-imperial, popular, aristocratic, conspiratorial, or some combination of all of the above. Almost always at a disadvantage when confronting the power of the state, insurgents typically have chosen the path of protracted conflict, strategies of exhaustion, and guerrilla and terroristic tactics. The modern theory of counterinsurgency emerged mainly as a consequence of the wars of decolonization that followed the end of World War II. The principal theorists were French and British. The most prominent included David Galula, Roger Trinquier, and Sir Robert Thompson.

From the time the first insurgent picked up a weapon and resisted authority, until fairly recently established governments have opted for harsh—even cruel—methods for dealing with him. Typically counterinsurgents have emphasized the capture of rebel leaders, destruction of their armed followings, collective punishment of those who supported them, and sometimes the

wholesale destruction of people. Torture, mutilation, and public executions occurred frequently in attempts by states to stifle rebellion, and in fact were normal events in everyday justice. Such were the methods employed by the ancient Assyrians, Romans, Chinese, Mongols, and numerous others.

Counterinsurgency methods and strategies have varied, according to the nature of the insurgents and their goals. Peasant rebellions, tax revolts, and conspiracies led by nobles led to a variety of different counterinsurgent strategies in early modern Europe. Louis XIV of France, for example, often combined compromise with coercion when dealing with tax revolts. The French Revolution may have contributed to the rise of nationalist sentiments in Europe, but most of the insurgencies in the numerous wars to follow were motivated more by regional loyalties. In Spain widespread opposition to Napoleonic rule was disparate, regional, and never successfully coordinated on a national level. Nevertheless, the scale of the uprisings introduced the word *guerrilla* (literally, small war) to the English language to describe bands of armed civilians engaged in insurgency.

The French invasion of Algeria in 1830 sparked an insurgency that lasted decades. At first the French were singularly unsuccessful at trapping and destroying the insurgents. Nor did atrocities committed by the French assist them in gaining support from the population and hence a valuable source of intelligence. When General Thomas-Robert Bugeaud arrived in 1840, he adjusted French tactics, discarded the heavy baggage trains, and formed highly mobile "flying columns." Bugeaud conducted raids in the style of Arab tribal warriors, called *razzia,* destroying crops and gathering livestock and generally depriving the insurgents of material support from the local population. Still, final victory eluded the French. Unable to gain the sympathies of the local population, the French settled in to govern an irreconcilable country, giving birth to the many legends of the Foreign Legion.

French counterinsurgency strategy evolved further in Indochina and Morocco toward the end of the 19th century. In Indochina, Joseph-Simon Galliéni combined expeditions of troops to destroy insurgents with a policy of winning over local elites. Galliéni transformed secure military posts into market places, attracting traders and contributing to economic prosperity. Hubert Lyautey in Morocco followed a similar counterinsurgency strategy. Lyautey believed that from the secure military and trading posts "there flowed forward, like a pool of oil, a great belt of civilization." Today his approach has been aptly termed the "oil-spot" strategy. Critics of this approach have pointed out the tenuous nature of French rule throughout its colonial empire, the often faulty intelligence from locals, the frequent defections of tribes from the French, and the Victorian mind-set that believed that the natives could be made to accept the norms of western civilization in the first place. Such a "hearts and minds" strategy nevertheless appealed to a French public that was indifferent at best to the acquisition of empire—a dubious concept at variance with such ideals as the "rights of man" and democracy.

Great Britain faced numerous insurgencies throughout its empire in the 19th century, including Ireland, India, Burma, Afghanistan, China, and Africa. The Boer War in South Africa proved to be

the severest test. During the course of the war, the British employed a strategy of concentration of the Boer population in camps, the construction of numerous fortified posts, and deployment of columns of troops to pursue the Boer commandoes into the sparsely populated *veld* or outback. Although a successful strategy, the atrocious conditions in the camps, where thousands of Boer women and children died of malnutrition and disease, outraged many in the British public and provided fodder for anti-British propaganda everywhere.

One of the preeminent authorities of British colonial warfare was Charles Callwell. The author of *Small Wars: Their Principles and Practice* (1896) divided his topic into several categories that reflected the complexity of his subject. Callwell identified three types of small wars: "campaigns of conquest or annexation, campaigns for the suppression of lawlessness or for the settlement of conquered or annexed territory, and campaigns undertaken to wipe out an insult, to avenge a wrong, or to overthrow a dangerous enemy." None of these properly speaking involved counterinsurgency, but Callwell also pointed out that frequently wars of conquest or annexation have resulted in a second stage characterized by "war of ambushes and surprises, of murdered stragglers, and of stern reprisals."

Soon after the Indian Wars in the American West ended, the United States undertook a major counterinsurgency effort in the newly conquered and annexed Philippines (1899–1902). Essentially an aristocratic-led insurgency by Emilio Aguinaldo with limited popular support, the U.S. Army successfully isolated the insurgents from the population despite periodic retaliations by U.S. troops that led to some innocent Filipinos being massacred. The U.S. Navy played a vital role in enforcing a blockade around the islands, effectively denying the insurgents of external support—often viewed as a crucial element for an insurgency to succeed. Defeat of guerrilla bands was seconded by efforts to build schools, improve sanitation, and other measures known collectively as the "policy of attraction." Negotiations with some insurgent leaders and the promise of independence won over many of the opponents of the U.S. occupation. Other U.S. counterinsurgency efforts followed from policy decisions to intervene in Caribbean and Latin American nations at the turn of the century. The U.S. Marine Corps adopted a *Small Wars Manual* (1940) as a consequence of their numerous experiences fighting insurgents.

The modern French experience in Vietnam and Algeria directly shaped the contemporary theory of counterinsurgency. In Vietnam the French were the first to confront a variation of the guerrilla doctrine of the Chinese nationalist leader Mao Tse-tung—a theory of protracted, people's war with an emphasis on political indoctrination as much as military struggle. The French responded with conventional means, and even when successful in attracting the Vietminh into a set-piece battle were eventually outgunned and out-fought at Dien Bien Phu in 1954. Having lost in Vietnam, the French Army was determined not to lose in Algeria (1954–1962). Applying a doctrine of "revolutionary warfare" the French formed mobile columns of their elite formations, supported by helicopters to chase down and destroy the insurgents. The French recruited Algerians, *harkis,* to serve alongside conscripted troops from France that provided general

security for the population. In the battle for the capital city of Algiers (1956–1957), martial law was decreed. The ringleaders of a terroristic bombing campaign were identified through the systematic torture of suspects—the urban uprising was crushed. Along the porous border with Tunisia, the French constructed the Morice line, effectively denying sanctuary to the insurgents. Yet despite all of the French military successes, no political solution to the conflict was found. With the collapse of the Fourth Republic and the election of Charles De Gaulle as the first president of a Fifth Republic in 1959, French policy gradually shifted away from keeping Algeria "French" and Algeria won its independence in 1962.

The ability of any state to effectively govern has always derived from some source of legitimacy. Sources of legitimacy have included divine right, religion, the rights of hereditary elites, and in modern times the consent of the governed. If the source of legitimacy to govern has been undermined or weakened beyond repair, then the ability of a counterinsurgent to respond with either political or military solutions to end an insurgency will be severely compromised. The intervention of a foreign power to support a government engaged in a counterinsurgency campaign is often problematic, since the mere fact that an outside force needs introduced tends to further erode legitimacy for a government under pressure and may even fan the flames of the insurgency.

Today the theory and practice of counterinsurgency draws upon the experiences of the wars of decolonization that took place in the Cold War era. The U.S. doctrine currently contained in FM 3-24 and MCWP 3-33.5 reflects the lessons of these conflicts. It is presently acknowledged that the people, as the source of legitimacy for modern forms of government, are the "center of gravity." The support of the population and the separation of the insurgents from the people are vital to a successful counterinsurgency effort. Counterinsurgents must address the grievances of the population to the degree that they are a cause of the insurgency in the first place. Equally important, counterinsurgents should focus on providing security for the population, replacing fear and apprehension with confidence for the established government. Security should be established in the most vital areas of the country first, usually the capital, and be followed by reforms and measures to solidify the support of the population (a variant of the oil spot strategy). Only when secured should the counterinsurgent attempt to spread outward to other areas of importance. In the meantime raids and smaller operating bases may be established in other regions to keep the insurgent forces off balance and prevent them from growing too strong. To encourage popular support for the government, information operations are useful to discredit the methods of the insurgents and to communicate the vision of the established government. According to current theory, the defeat of insurgents follows more as a result of the population rejecting the insurgents' methods and goals than any combination of violent military actions. As the French Algerian War veteran and theorist of counterinsurgency David Galula observed in 1963: "The turning point really comes when leaders have emerged from the population and have committed themselves on the side of the counterinsurgent. They can be counted upon because they have

proved their loyalty in deed and not in words, and because they have everything to lose from a return of the insurgents." Or equally the words of Roger Trinquier in 1961 will suffice to drive home the point about when to declare victory in a counterinsurgency when he wrote that a counterguerrilla operation ends only "when the enemy's entire warfare organization has been destroyed and ours put in its place."

For the United States today, mired in two counterinsurgencies in Iraq and Afghanistan, this means a complete strategic reassessment. The tools of past warfare and doctrines that worked in the past are being restructured to deal with new, innovative enemies who are not susceptible to the same military forces that were effective in World War II. The U.S. military and the American Industrial Complex is struggling to innovate and adapt to alternate forms of warfighting.

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See also: Persian Gulf War II; United States Army; United States Marine Corps; United States Navy; Vietnam War; World War II

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CUBAN MISSILE CRISIS (OCTOBER 1962)

This international crisis was the closest that the two Cold War superpowers—the United States and the Soviet Union—came to full-scale nuclear war. In 1958 an indigenous revolutionary movement led by Fidel Castro seized power from Fulgencio Batista, a U.S. client who since 1933 had been dictator of the Caribbean island of Cuba, less than a hundred miles from the American coast. Although Castro initially declared that he was not a communist, in the spring of 1959 he covertly sought Soviet aid and military protection. American economic pressure and boycotts quickly gave him an excuse to move openly into the Soviet camp. In response the Central Intelligence Agency (CIA) planned to assist Cuban exiles to attack the island and overthrow Castro. Initiated under President Dwight D. Eisenhower and inherited by his successor John F. Kennedy, the April 1961 Bay of Pigs invasion attempt proved a humiliating fiasco for the United States. Kennedy and Secretary of Defense Robert S. McNamara continued to develop plans for a second invasion, and their advisors also devised various ingenious and often far-fetched schemes to overthrow or assassinate Castro, who not unnaturally sought further Soviet aid.

In mid-1961, as the concurrent Berlin Crisis intensified and culminated in the building of the Berlin Wall, military



View from U.S. reconnaissance aircraft of Mariel Bay, Cuba. In October 1962, Soviet missile equipment and transport ships were photographed by U.S. U-2 spy planes, leading to the Cuban Missile Crisis. (Library of Congress)

hard-liners in the Kremlin, frustrated for several years, succeeded in implementing a 34 percent increase in spending on conventional forces. Both the Bay of Pigs and Kennedy's bellicose inauguration rhetoric that his country would "pay any price, bear any burden, meet any hardship, support any friend, oppose any foe, in order to assure the survival and the success of liberty" may have energized them. Despite claims of a missile gap between the Soviet Union and the United States, in practice the strategic missile imbalance greatly favored the United States, which had at least eight times as many nuclear warheads as its rival. Even American leaders were unaware of just how lopsidedly the nuclear situation favored them, believing the ratio to be only about three to one. The recent U.S. deployment of 15 intermediate-range missiles in Turkey, directly threatening Soviet territory, further angered Nikita Khrushchev, the Soviet Communist Party's general secretary, making him eager to redress the balance. It seems that he also hoped to pressure the United States into making concessions on Berlin while he rebutted Communist Chinese charges that the Soviets were only paper tigers who were unwilling to take concrete action to advance the cause of international revolution. In addition, Khrushchev apparently felt a romantic sense of solidarity with the new Cuban state, which reassured him and other old communists that their cause still possessed international vitality.

Early in 1962 Khrushchev offered Soviet nuclear missiles, under the control of Soviet technicians and troops, to Castro, who accepted and oversaw their secret installation. Khrushchev apparently believed that these would deter American plans to invade Cuba. Rather optimistically he calculated that Kennedy and his advisors would find the prospect of nuclear war over the Cuban missiles so horrifying that despite their chagrin once the missiles were in place they would accept their presence in Cuba.

The Bay of Pigs fiasco followed by Khrushchev's June 1961 summit meeting with Kennedy at Vienna apparently convinced the Soviet leader that Kennedy was weak and would be easily intimidated. So confident was Khrushchev that when Kennedy administration officials warned in July and August 1962 that the United States would respond strongly should the Soviets deploy nuclear or other significant weaponry in Cuba, he implicitly denied any intention of doing so. Admittedly, by this time the missiles had already been secretly dispatched, and

their installation was at least a partial fait accompli. At this stage of his career, moreover, Khrushchev's behavior tended to be somewhat erratic. In any case, he miscalculated. Instead of treating the Cuban missiles as deterrent weapons, the Kennedy administration regarded them as evidence of Soviet aggressiveness and refused to accept their presence.

In October 1962, U-2 reconnaissance planes provided Kennedy with photographic evidence that Soviet officials had installed intermediate-range nuclear weapons in Cuba. When the president learned on October 16, 1962, of the presence of the missiles, he summoned a secret Executive Committee of 18 top advisors—among them chairman of the Joint Chiefs of Staff Maxwell D. Taylor, CIA Director John McCone, Secretary of State Dean Rusk, Secretary of Defense Robert S. McNamara, National Security Advisor McGeorge Bundy, Vice President Lyndon B. Johnson, and the president's brother and closest advisor, Attorney General Robert F. Kennedy—to decide on the American response. President Kennedy also included senior members of the broader foreign policy establishment, including former Secretary of Defense Robert A. Lovett and former Secretary of State Dean Acheson.

Whatever the logical justification for Khrushchev's behavior, politically it would have been almost impossible for any American president to accept the situation. The American military calculated that the missiles would increase Soviet nuclear striking force against the continental United States by 50 percent. Since U.S. officials underestimated their numbers, in reality they would have doubled or even tripled Soviet striking capabilities, reducing the existing American numerical advantage to a ratio of merely two or three to one. Kennedy, however, viewed the missiles less as a genuine military threat than as a test of his credibility and leadership. Taylor, speaking for the U.S. military, initially favored launching air strikes to destroy the missile installations, a course of action that would almost certainly have killed substantial numbers of Soviet troops, was unlikely to eliminate all the missiles, and might well have provoked full-scale nuclear war. So might have another option—that of invasion by U.S. ground forces. Discussions continued for several days. Eventually, on October 22 Kennedy publicly announced the presence of the missiles in Cuba, demanded that the Soviet Union remove them, and announced the imposition of a naval "quarantine" around the island.

Several tense days ensued, in the course of which on October 27 Soviet antiaircraft batteries on Cuba shot down—apparently without specific authorization from Kremlin leaders, whom this episode greatly alarmed—a U.S. U-2 reconnaissance aircraft. Seeking to avoid further escalation of the crisis, Kennedy refused to follow Taylor's advice to retaliate militarily and deliberately refrained from action. After some hesitation, Khrushchev acquiesced to the removal of the missiles, once his ambassador in Washington, Anatoly Dobrynin, secretly obtained an unpublicized pledge from Robert Kennedy that his brother would shortly remove the missiles in Turkey. Provided that the Soviet missiles were removed and not replaced, the United States also promised not to mount another invasion of Cuba.

Recently released tapes of conversations among President Kennedy and his advisors reveal that to avoid nuclear war,

he was prepared to make even greater concessions to the Soviets, including taking the issue to the United Nations and openly trading Turkish missiles for those in Cuba. In so doing, he parted company with some of his more hard-line advisors. Showing considerable statesmanship, Kennedy deliberately refrained from emphasizing Khrushchev's humiliation, although other administration officials were privately less diplomatic and celebrated their victory to the press.

Newly opened Soviet documentary evidence has demonstrated that the Cuban situation was even more dire than most involved then realized. Forty-two thousand well-equipped Soviet troops were already on the island, far more than the 10,000 troops that American officials had estimated. Moreover, although Kennedy's advisors believed that some of the missiles might already be armed, they failed to realize that no less than 158 short- and intermediate-range warheads on the island, whose use Castro urged should the United States invade, were already operational and that 42 of these could have reached American territory. A bellicose Castro was also hoping to shoot down additional U-2 planes and provoke a major confrontation. The potential for a trigger-happy military officer to set off a full-scale nuclear war almost certainly existed, retrospectively chilling evidence of the dangers inherent in these weapons.

The Cuban Missile Crisis had a sobering impact on its protagonists. Humiliation at American hands was among the factors that compelled Soviet leaders to undertake an expensive major nuclear buildup to achieve parity with the United States, reaching this in 1970. Khrushchev's fall from power in 1964 was probably at least partly due to the missile crisis. Soviet officials also felt that they had come dangerously close to losing control of the actual employment of nuclear weapons in Cuba, either to their own military commanders on the ground or even potentially to Castro's forces. Even though the settlement effectively ensured his regime's survival, Castro meanwhile felt humiliated that the Soviets and Americans had settled matters between them without regard for him. Before Khrushchev's fall from power, the two men were reconciled, and Soviet-Cuban relations remained close until the end of the Cold War. To the chagrin of successive U.S. presidents, however, Castro remained in power into the 21st century, eventually becoming the doyen among world political leaders.

The Cuban Missile Crisis tested and perhaps weakened the Western alliance. West European political leaders, including Harold Macmillan of Britain, Konrad Adenauer of the Federal Republic of Germany (FRG, West Germany), and most notably Charles de Gaulle of France, felt some discomfort that although Kennedy dispatched Acheson to brief them on the crisis, American officials had not consulted them on decisions of great importance to their own country's survival. This may have been one factor impelling de Gaulle to follow a highly independent foreign policy line in subsequent years.

The crisis exerted a certain salutary, maturing effect on Kennedy, making the once-brash young president a strong advocate of disarmament in the final months before his untimely death in November 1963. His stance compelled the Soviet leadership to establish a hotline between Moscow and Washington to facilitate communications and ease

tensions during international crises. The two powers also finally reached agreement in 1963 on the Partial Test Ban Treaty (PTBT), which halted nuclear testing in the atmosphere, under water, and in space. From then on both superpowers exercised great caution in dealing with each other, and on no subsequent occasion did they come so close to outright nuclear war.

Priscilla Roberts

See also: Central Intelligence Agency (CIA), Eisenhower, Dwight David; Kennedy, John Fitzgerald; McNamara, Robert Strange; Missile Gap; Soviet Union (USSR)

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D

DEFENSE INDUSTRY LOBBYISTS

"Lobbying" is the practice of attempting to influence the creation, implementation, or interpretation of laws through personal contacts, advice, and the exchange of personal favors. It has existed in many forms in the United States since the creation of the American government, and the right to lobby is protected by the First Amendment to the U.S. Constitution. Lobbying occurs to some degree at all levels of government, although it is most visible at the federal level, particularly in the U.S. Senate and the U.S. House of Representatives.

Private U.S. citizens have acted as defense lobbyists for more than two centuries. In wartime this has often taken the form of personal or group solicitations for lucrative government contracts, particularly for weapons development or production. Other individuals and companies lobbied to offer services to the military, or for changes in the conduct of military operations. During the American Civil War, American politicians received thousands of letters and petitions attempting to influence their oversight of the conflict. While most went unheeded, some led to significant fiscal outlays, such as John Ericsson's successful proposal to produce iron warships of his own design for the U.S. Navy. Other lobbyists pressed for commissions in the military, leading to the creation of an entire class of flag officers—the "political generals."

Attempts to influence U.S. defense policies continued in the 20th century, as individual corporations hired private citizens to lobby on their behalf. Such lobbying often resembled open bribery, as the lobbyists could offer substantial sums of campaign money in exchange for legislative influence. In some cases the lobbyists also promised the loyalty of large voting blocs within legislative districts, another means to ensure the targeted legislator could remain in a key position indefinitely. American involvement in World War II required a massive industrial output, as the United States strove to become the "Arsenal of

Democracy" envisioned by President Franklin D. Roosevelt. The industrial capacity of the nation, once converted to wartime production, proved staggering. From 1942 to 1945 American factories produced over 80,000 tanks, 300,000 aircraft, and 2,300,000 military trucks. However, this production required factories to stop the production of consumer goods. To convince American corporations to convert production lines entirely to military goods, the government had to promise manufacturers an acceptable profit and access to the finite supply of raw materials. Lobbyists from every major corporation in the nation sought to procure maximum resources and rewards through government contracts. Often they enlisted the help of state and local politicians, labor leaders, and military officers to help their cause.

By the end of the war, American corporations had easily out-produced all of the Axis powers combined, and managed to supply an enormous quantity of war materials to British, French, and Soviet military forces. Most American wartime producers converted back to previous assembly lines, returning to a civilian market eager for manufactured goods. However, some corporations could not simply return to peacetime products, as their lines were too overspecialized for civilian goods. To remain profitable, viable corporations, these companies needed the United States military to remain far larger than the prewar status quo. Such an increased force naturally required equipment, which needed maintenance, spare parts, and occasional replacement.

The Cold War provided the perfect opportunity for the defense industry to remain in business. The ever-present threat of Communism, personified by the Soviet Union and expanded with the end of the Chinese Civil War in 1949, encouraged American legislators to maintain the largest peacetime military force in American history. Maintaining a military comparable in size to that of the Soviet Union was politically impossible, thus American military and civilian leaders embraced technological superiority as the means to prevent a Soviet conquest of Western Europe.

The Atomic Age, which began almost simultaneously with the Cold War, offered the possibility of enormously destructive weaponry. To deliver such weapons against any likely enemy would require specialized aircraft that could not simply be converted from civilian airliner models. To ensure the bomber aircraft could reach enemy targets deep in the Soviet heartland, American aerial planners demanded not only long-range bombers but also escort fighter planes capable of defeating enemy air defenses. Likewise, to defend against enemy aerial attacks, American planners called for a massive air-defense network of radar sites, gun emplacements, interceptor aircraft, and eventually guided missiles. All of the hardware required to keep America safe while threatening the enemy could be produced by the U.S. defense industry, albeit at a tremendous cost.

With many companies vying for funds from a burgeoning defense budget, lobbying the federal government became increasingly important. Congressional members tended to reward companies based within their own districts whenever possible, a sure-fire strategy to provide high-paying jobs to constituents. Lobbyists pushed for appropriations for new technology in Congress, but also sought to convince military leaders of

the utility of new weapon systems, even when previous systems functioned perfectly well. Military commanders were hard-pressed to refuse newer, better equipment for the troops under their command, particularly when the funding from Congress proved readily available.

At the state and local level during the Cold War, lobbyists pressed for special tax incentives for corporations to build and maintain production facilities in a wide variety of locales. Often the location of corporations seemed counterintuitive, until one examines the prevailing wage rates in an area, the willingness of a state or municipality to provide land and other resources free of charge, or other incentives. In particular the South and the West began to dominate defense production at the same time that a general national migration began into these regions. Many of the longest-serving legislators at the federal level came from these areas, and as their seniority accrued they became increasingly able to influence defense contracts for their districts.

During the Korean War, many of the munitions used by American forces came from the huge stockpiles left over from World War II. As such, defense lobbyists had the opportunity to press the legislature to authorize production to refill the American supply of weapons. By the Vietnam War, American weapons had changed enough that manufacturers could count upon massive procurement expenditures for the duration of the war. The end of American involvement in the Vietnam War threatened to bankrupt American defense corporations. During the war the United States had relied heavily upon aerial weapons, dropping approximately eight million tons of bombs during the war. By the end of the conflict some of the weapons were "precision munitions," laser-guided bombs capable of in-flight course corrections for increased accuracy. Such sophisticated weaponry provided a significant advantage on the battlefield, but it came at a premium price with each bomb costing more than ten times the cost of a conventional bomb. Some military and civilian leaders argued that the weapons were more cost-effective, as their precision allowed attacks upon targets previously considered indestructible. To the defense industry suppliers, though, these weapons represented the culmination of years of research and development, resulting in a highly profitable inventory. At the end of the conflict American defense budgets plummeted, and the 1973 shift to an all-volunteer force ensured that an increasing share of the smaller budget would go to personnel recruitment, training, and retention.

The shift away from a conscript military had an unexpected side effect. Due to the inability of the U.S. military to rapidly create a large force through a draft, the combat performance of each unit needed to improve. As such, the quality of American equipment, proven inferior in many cases during the 1973 Arab-Israeli War, needed to be improved. Army Chief of Staff General Creighton Abrams identified a series of weapon systems needed for the new all-volunteer Army. Each system represented billions of dollars in future contracts, and defense industries submitted their designs to fulfill military requirements. As military representatives tested each design, they provided reports recommending the adoption of various systems. The ultimate decision for the most part rested with civilian leaders, many of whom relied upon lobbyists for advice and support. Even when a certain design could not be selected, a company might receive

contracts to build weapon systems designed by a competitor. This competition kept the major defense contractors afloat, and when the defense budgets of the 1980s rapidly swelled, so did the profit margins of defense corporations.

In the post-Cold War era, defense lobbying has significantly changed. The interconnected nature of military procurement, private corporate development, and legislative oversight has created an entirely new class of lobbyists. Prior to the 1980s few former legislators became lobbyists. However, previous stigmas against the practice, coupled with a massive growth in the number of lobbying firms and the salaries of lobbyists, dramatically altered the pattern. From 1998 to 1995 almost half of the Congressional members who left political office became paid lobbyists. These individuals bring extensive personal contacts to their new employer, as well as direct access to current legislators through perks such as the privilege of using Congressional facilities. In a similar fashion, many retired military officers have become lobbyists, relying more upon their personal contacts within the military than any business acumen to justify their new positions.

To address the massive growth of lobbying in the past two decades, the federal legislature passed a series of laws. In 1995 the Lobbying Disclosure Act required all lobbyists to formally register with the Senate and House of Representatives. Amendments to the law required public disclosures of expenditures and influence upon specific legislation. In response, many lobbyists began to style themselves as consultants, advisors, or advocates, while performing the same services as before. The Legislative Transparency and Accountability Act of 2006 restricted the acceptable practices of lobbyists regarding gifts and travel provided to politicians. A number of loopholes in the bill allowed lobbyists to essentially continue their previous behavior while changing the official source of the gifts and travel. A further legislative attempt to transform lobbying, the Honest Leadership and Open Government Act of 2007, sought to reform the lobbying system by closing many of the loopholes and restricting the interaction of lobbyists and legislators. In the Executive Branch, President Barack Obama announced that members of his administration would be forbidden from joining lobbying firms for two years after leaving their government positions.

The modern defense lobby remains very strong, spending over half a billion dollars per year upon lobbying efforts. Defense contractors have developed a new means of guaranteeing broad support for their activities by spreading defense production into a broad number of legislative districts. This diversification may not guarantee the continuation of large-scale defense projects, but it certainly makes the task of defense lobbyists pushing for the adoption of new weapons far easier.

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See also: Armed Services Committees, U.S. Senate/House; China, People's Republic of (PRC); Cold War; Korean War; Research and Development/Think Tanks/University Research; Roosevelt, Franklin Delano; Soviet Union (USSR); United States Navy; Vietnam War; Weapons, Air; Weapons, Nuclear

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DEFENSE PRODUCTION ACT (SEPTEMBER 8, 1950)

Law signed by President Harry S. Truman on September 8, 1950. This important piece of wartime legislation was cast to accomplish two primary goals. First, Congress designed the Defense Production Act to empower the president with specific authority to mobilize U.S. industry and resources for the Korean War. Second, and perhaps more critical, the act enabled the executive branch to build—and maintain at perpetual readiness—U.S. industrial and military mobilization bases in case of an all-out war with the Soviet Union. Thus, the Defense Production Act was in reality the enabling legislation that allowed the nation to arm fully for the protracted Cold War that lay ahead. It ensured the full implementation of National Security Council Report NSC-68, "United States Objectives and Programs for National Security."

Included in the specific powers granted the president was the authority to establish production priorities and materials allocations systems; to requisition personal property for defense purposes; to expand productive capacity; to increase the extraction and processing of strategic materials; and to invoke wage, price, and credit controls. Most of the Korean War era mobilization agencies sprang directly from this sweeping piece of legislation.

During the Korean War, the U.S. Congress closely monitored the implementation of the Defense Production Act, modifying it substantially in Summer 1951. In Summer 1952, Congress again modified the legislation, although less radically than the year before. As the Korean War dragged on and became increasingly unpopular, Congress used the act as a vote of no confidence against Truman, twice trimming the powers granted to him under the original legislation. Although never again invoked fully after the end of the Korean War, the Defense Production Act remained in force throughout much of the Cold War.

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See also: Cold War; Korean War; National Security Council Report NSC-68; Soviet Union (USSR); Truman, Harry S.

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DEPARTMENT OF DEFENSE (DOD)

The Department of Defense is the cabinet level agency in the United States government that oversees the four



The Pentagon in Arlington, Virginia, houses the Department of Defense. It is the world's largest office building where approximately 25,000 people work. (Library of Congress)

branches of the U.S. military (U.S. Army, U.S. Navy, U.S. Marine Corps, and U.S. Air Force). The U.S. Congress created the Defense Department when it passed the National Security Act in 1947. This legislation made the Department of the Navy and the Department of War (which was renamed the Department of the Army) subordinate agencies along with the newly created Department of the Air Force. In the years that have followed, the Congress has passed a series of new acts designed to centralize the authority of the Secretary of Defense, the presidential appointee that heads this agency. It is the cabinet department with the largest budget often making up half of all government appropriations.

In the wake of World War II there was a good deal of unhappiness in Congress about the cooperation of the various military services and the waste of appropriated funds during that conflict due to a duplication of services. Other issues that troubled members of Congress included civil-military policy coordination, interservice cooperation, and intelligence work. These concerns produced a long and intense public debate about defense policies from 1945 to 1947 with U.S. naval officers, U.S. Navy alumni, and their supporters generally opposed to the push from similar groups associated with the U.S. Army and the semi-independent air force. Seapower advocates feared that unification would give naval aviation to the new air force and that the army would take over the mission of the marine corps. Opponents of unification also worried about creating a "Prussian-style general staff" that might limit

congressional oversight. There was merit in these objections, but Congress wanted the savings that unification offered. Realizing that some type of merger was inevitable, Secretary of the Navy James V. Forrestal and his former business associate Ferdinand Eberstadt developed plans for loose centralization.

The Eberstadt-Forrestal plan became the basis for the National Security Act of 1947. This legislation created the National Military Establishment and a Secretary of Defense who would only have "general direction, authority, and control" over this new agency. In addition, the act made the air force separate from the army, created a Department of the Air Force, gave the Joint Chiefs of Staff legal standing, created a Munitions Board, and created a Research and Development Board that had the charge to coordinate the activities of the armed services in these areas. This new law also created the Central Intelligence Agency (CIA) and the National Security Council (NSC). Although both organizations were separate from the new National Military Establishment, they were part of the coordinating machinery that Forrestal and Eberstadt had proposed to limit in the centralization of the armed services. At first, the army, navy, and air force secretaries were members of the NSC. Although no longer cabinet level appointments, these secretaries operated autonomously from one another and the secretary of defense.

In addition to centralizing the military, Congress authorized military expansion to levels larger than those the armed services had enjoyed in previous times of peace. Realizing that voluntary enlistments were insufficient, Congress passed the Selective Service Act of 1948—only the second time that the United States had instituted peacetime conscription. The law required men between the ages of 19 and 26 to serve 21 months on active duty.

President Harry S. Truman made Forrestal the first secretary of defense. Although Forrestal had been an opponent of military unification, his unhappy experiences as secretary convinced him that more reforms were needed to strengthen the role of the defense secretary. Just before leaving office he recommended the creation of an undersecretary of defense; making the secretary's authority stronger by giving him specific rather than "general" responsibility for exercising "direction, authority, and control" over this agency; creating the position of chairman of the Joint Chiefs of Staff; increasing the size of the Joint Staff; and excluding the service secretaries from the NSCo.

Even though Forrestal parted from the administration under less than ideal conditions and took his own life shortly after leaving office due to the stress and pressures of his job, Truman saw the merit in these recommendations. He asked Congress to modify the National Security Act along the lines that Forrestal had recommended. This legislation would transform the National Military Establishment into an executive department—the Department of Defense—and give the defense secretary more administrative authority.

In August of 1949 Congress agreed and amended the National Security Act of 1947. The Department of Defense replaced the National Military Establishment, and the Departments of the Army, Navy, and Air Force became subordinate agencies within this new Defense Department. Congress removed the modifying word "general" from the

legislation describing the secretary's authority over the military, increasing the authority of this office. The secretary also had a deputy secretary and three assistant secretaries to do more of the policy and administrative work required of cabinet members. Congress also created the position of Chairman of the Joint Chiefs, but one without a vote in Joint Chiefs of Staff proceedings.

Despite this centralization of authority, Forrestal's successor Louis Johnson faced a challenge from naval officers over his determination to contain military spending when he cancelled the construction of the aircraft carrier *USS United States*. In the "revolt of the admirals" the Secretary of the Navy John L. Sullivan resigned and a number of officers questioned the effectiveness of U.S. Air Force plans for strategic bombing, which the navy had intended to participate in with carriers like the *USS United States*. Congressional hearings followed that touched on a number of issues that were at the heart of this controversy, including strategy, service missions, and the authority of the defense secretary. Johnson also had a long feud with Secretary of State Dean Acheson, which he chose to precipitate over control of U.S. national security strategy. He fought the efforts of the Department of State to chart a new course for U.S. foreign policy in the wake of the Communist victory in China and the Soviet detonation of an atomic bomb.

The Korean War reversed Johnson's frugal defense policies and led to his dismissal from office. His successor was General of the Army George C. Marshall. His appointment required a waiver from Congress because the National Security Act prohibited any commissioned military officer from holding the post within 10 years of their retirement from active duty. (He is to date the only career military officer to have served as secretary of defense.)

Marshall considered, as he had in World War II, America's allies to be a particularly valuable asset. He worked to improve the strength of the North Atlantic Treaty Organization (NATO) through the deployment of more U.S. military forces to Europe. Conflicts over the competing priorities of Korea and Europe were at the heart of the Truman-MacArthur confrontation in 1951. Marshall supported Truman throughout this crisis. That same year he also testified in front of Congress in support of the Mutual Security Act, which consolidated foreign aid programs. This legislation gave the Department of Defense responsibility for the administration of the weapons and supply programs for NATO allies and other nations under the authority of the new Mutual Security Agency.

Marshall also pushed for changes in manpower policy. Under his urging, Congress passed the Military Training and Service Act of 1951. This legislation lowered the draft age from 19 to 18-1/2, and increased the time of service from 21 to 24 months. This legislation, however, was less than what he wanted. He hoped Congress would mandate universal military training. Marshall also created the new position of assistant secretary of defense for manpower and personnel. He made Anna M. Rosenberg, a labor and public relations specialist, the first person to hold this position. Her appointment was historic. She was also the first woman to hold a Department of Defense assistant secretary position.

With more money flowing into the Department of Defense, there were fewer confrontations between the various

services over missions and strategy, but one of the most controversial secretaries of defense came into office in 1961. Robert McNamara instituted a number of reforms that many uniformed personnel resented in bitter fashion. After examining the separate and usually uncoordinated military efforts in intelligence, McNamara in 1961 consolidated these functions in the Defense Intelligence Agency. He also established the Defense Supply Agency to unify the military procurement, distribution, and inventory management process. He also instituted systems analysis. The core of this approach was the Planning-Programming-Budgeting System that examined defense requirements systematically and produced long-term, program-oriented defense budgets. There were limits to McNamara's reform efforts, though. He rejected a radical idea that came from Senator W. Stuart Symington to merge the armed services and replace the Joint Chiefs with a single chief of staff.

At the same time, the Kennedy administration placed particular emphasis on improving ability to counter Communist "wars of national liberation," in which the enemy avoided direct military confrontation, resorting to political subversion and guerrilla tactics. The resources devoted to Special Forces increased, but all services resisted making low intensity conflict their primary focus, which explains much of the mixed record the United States had in Vietnam.

When Richard Nixon became president, he appointed Melvin Liard to be Secretary of Defense. Laird established the Defense Investigative Service, the Defense Mapping Agency, the Office of Net Assessment, and the Defense Security Assistance Agency. Laird's most important achievement, though, was overseeing the end of conscription as the military made the transition to an all volunteer force. The result was that opposition to the Vietnam War declined in direct relationship to the progressively smaller drafts.

The next period of major change in the Defense Department came in the early to mid-1980s during the presidency of Ronald Reagan. Caspar W. Weinberger served as Reagan's secretary of defense during this time. He came into this office with a reputation as cost cutter, which had earned him the nickname "Cap the Knife." Despite his previous record he became the chief spokesman for Reagan's efforts to increase the defense budget. Congress agreed and appropriated $175.5 billion in 1981 and $210.6 billion for 1982. That second figure was 11.4 percent of real growth.

Improving the morale of the men and women in uniform was a major goal Weinberger had while in office. He worried about low reenlistment rates and education levels for enlisted and non-commissioned officers. Instead of bringing back the draft, he increased compensation and support services, which improved both the retention and quality of the personnel serving in the military.

A major reform initiative came from Congress during this time period as well. Responding to the inability of the armed services to train and work together in effective fashion, Congress passed the Goldwater-Nichols Department of Defense Reorganization Act in 1986. This legislation strengthened the power of the Chairman of the Joint Chiefs of Staff and made other changes designed to improve the organization of the Joint Chiefs of Staff and

the interoperability of the military to conduct joint operations.

Nick Sarantakes

See also: Acheson, Dean Gooderham; Central Intelligence Agency (CIA); China, People's Republic of (PRC); Goldwater-Nichols Defense Reorganization Act; Johnson, Louis Arthur; Joint Chiefs of Staff; Kennedy, John Fitzgerald; Marshall, George Catlett; McNamara, Robert Strange; Reagan, Ronald Wilson; Soviet Union (USSR); Truman, Harry S.; United States Air Force; United States Army; United States Marine Corps; United States Navy; Vietnam War; Weapons, Nuclear; Weinberger, Caspar; World War II

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DEPARTMENT OF HOMELAND SECURITY (DHS)

Federal cabinet-level agency established on November 25, 2002, with the passage of the Homeland Security Act of 2002. Created in the aftermath of the September 11, 2001, terrorist attacks, the DHS marked the largest restructuring of the federal government since the end of World War II. The DHS commenced operations on January 24, 2003, and brought together approximately 180,000 federal employees and 22 agencies into a cabinet-level department. The DHS was created to prevent terrorist attacks within the United States, reduce the vulnerability of the United States to terrorism, and minimize the damage from and speed the recovery after terrorist attacks.

Homeland security within the United States was traditionally viewed as a state concern, interpreted by the Constitution as related to public health and safety. The federal government historically focused on national security while leaving local and state governments responsible for these types of domestic concerns. However, as federal power has increased in relation to the states, so has the role the federal government in homeland security matters.

Until the war years of the 20th century, the federal government largely took a secondary role to state governments in homeland security issues. One notable exception to this trend rests with the U.S. Army Corp of Engineers. This organization was tasked with providing flood protection for the nation through legislation such as the Flood Control Act of 1936, in addition to a range of other disaster-related roles. During the Cold War, homeland security took on a truly national role with the creation of the Office of Civil and Defense Mobilization in the early 1950s. Commonly referred to as the Civil Defense Agency, this body gave the federal government a major role in preparing the domestic population for nuclear attack. Other notable federal interventions into domestic homeland security include the Office of Emergency Preparedness, established in 1961, and the Federal Emergency Management Agency (FEMA), established in 1979.

With the end of the Cold War, the federal government increasingly focused on



Homeland Security Director Tom Ridge unveils a color-coded terrorism warning system in Washington, D.C. on March 12, 2002. Ridge said that the nation is on yellow alert. The five-level system is a response to public complaints that broad terror alerts issued by the government since the September 11, 2001 attacks raised alarm without providing useful guidance. (AP/Wide World Photos)

homeland security. The rising threat of weapons of mass destruction (WMDs) and terrorism prompted the national government to take on an even greater role in homeland security. Presidential Decision Directive/National Security Council (PDD/NSC) document 39 of June 21, 1995, and PDD/NSC 63 of May 22, 1998, both reflected the increased federal focus in protecting domestic population and resources from terrorist attacks. The National Defense Panel of 1997 called for the federal government to reform homeland security. The panel's recommendations included the need to incorporate all levels of government into managing the consequences of a WMD attack or terrorist activities. Similar findings were made by the Hart-Rudman Commission (the U.S. Commission on National Security/Twenty-First Century) in January 2001. The commission recommended a cabinet-level agency to combat terrorism.

After the September 11, 2001, terrorist attacks, the George W. Bush administration undertook the significant reforms to promulgate the earlier recommendations. Bush established the Office of Homeland Security (OHS) under the direction of former Pennsylvania Governor Tom Ridge on October 8, 2001, through Executive Order 13228. The goals of the OHS involved coordinating homeland security efforts among the various federal, state, and local government agencies, and the development of a comprehensive homeland security

strategy. However, the new body had no real budgetary or oversight authority and its ability to accomplish its goals was limited. The principal strategy for DHS was developed in the July 2002 National Strategy for Homeland Security White Paper and the earlier October 24, 2001, U.S. Patriot Act. Legislative authority was granted for the formation of DHS on November 25, 2002, through the Homeland Security Act.

Headquartered in Washington, D.C., DHS became the 15th cabinet department within the federal government. It was tasked to serve as the coordinating body for the 87,000 different jurisdictions within the United States. The DHS consists of four major directorates, including Border and Transportation Security, Emergency Preparedness and Response, Science and Technology, and Information Analysis and Infrastructure Protection.

In the area of Border and Transportation Security, the U.S. Custom and Border Protection agency and the U.S. Immigration and Customs Enforcement service agency were established. Other agencies transferred into this directorate include the Federal Protective Service, Animal and Plant Health Inspection Service, Transportation Security Administration, and the Federal Law Enforcement Training Center. The Emergency Preparedness and Response section was created when the Homeland Security Act transferred the following agencies into the DHS: the Federal Emergency Management Agency; from the Department of Health and Human Services the Strategic National Stockpile, Office of Emergency Preparedness, Metropolitan Medical Response System and the National Disaster Medical System were transferred; Domestic Emergency Support Team from the Department of Justice (DOJ); National Domestic Preparedness Office from the Federal Bureau of Investigation (FBI); and the Integrated Hazard Information System from the National Oceanic and Atmospheric Agency (NOAA). In addition, the Department of Energy (DOE)'s Nuclear Incident Response Team can operate from DHS during emergencies. To facilitate Information Analysis and Infrastructure Protection, the act transferred to the DHS the Critical Infrastructure Assurance Office from the Department of Commerce (DOC); Federal Computer Incident Response Center (GSA) National Communications System from the Department of Defense (DOD); National Infrastructure Protection Center (FBI); National Infrastructure Simulation and Analysis Center including the energy security and assurance program (DOE). To deal with Science and Technology issues, the Homeland Security Act transferred from the DOE various programs relating to the nonproliferation of chemical, biological, and nuclear weapons and research; The Environmental Measurements Laboratory; and the Lawrence Livermore National Laboratory. All functions relating to the DOD's National Bio-Weapons Defense Analysis Center and the Plum Island Animal Disease Center were also transferred to the DHS.

In addition, the U.S. Coast Guard and the US Secret Service were transferred into DHS. The Coast Guard is the primary agency for maritime safety and security. In addition, the Guard's long history of interdiction and antismuggling operations bolstered the ability of the DHS to protect the nation's maritime

boundaries. The Secret Service is the lead agency in protecting senior executive personnel and the U.S. currency and financial infrastructure. Under the DHS the U.S. Citizenship and Immigration Services was formed to replace the Immigration and Naturalization Service. A fifth directorate, Management, is responsible for budget, facilities, and human resource issues.

In addition to the key directorates and agencies, DHS operates a number of other offices. The Office of State and Local Government Coordination serves as the primary point of contact for programs and exchanging information between DHS and local and state agencies. The Office for Domestic Preparedness assists state and local authorities to prevent, plan for, and respond to acts of terrorism. The Office of the Private Sector facilitates communication between DHS and the business community. The Privacy Office of the DHS minimizes the dangers to and safeguards the rights to privacy of U.S. citizens in the mission of homeland security. The Office for Civil Rights and Civil Liberties provides policy and legal guidance on civil rights and civil liberties issues. These agencies were created to allay the fears and concerns of civil libertarians and ensure that the DHS does not violate the nation's civil liberties. The National Infrastructure Advisory Council provides advice to security agencies on protecting critical information systems. The Interagency Coordinating Council on Emergency Preparedness and Individuals with Disabilities ensures the consideration of disabled citizens in disaster planning.

DHS relies on other branches of government to fulfill its mission of protecting the U.S. homeland. Tasked with largely a preventive role, investigative responsibility continues to primarily rest with local, state, and federal law enforcement agencies, including the FBI. While DHS employees many of its own analysts, the majority of its intelligence collection efforts are conducted outside of the department by other members of the intelligence community. Some called for the DHS to incorporate the FBI and the Central Intelligence Agency into a single intelligence clearing-house within the department. However, the two were left as autonomous entities. In order to aid states, the DHS provides funding in the form of grants and targeted expenditures to states, localities, and private bodies, including research centers.

The military also maintains a role in homeland security; chiefly through its Northern Command. The Northern Command plays a role in homeland defense as well as domestic airway security. The military currently maintains the largest capability for Chemical, Biological, and Nuclear incident response as well as personnel augmentation during domestic emergencies, most notably through federalization of the National Guard. One example of this type of federalization occurred with the deployment of the National Guard to bolster airport security following the September 11, 2001, terrorist attacks.

Former governor of Pennsylvania Tom Ridge was appointed the first secretary of Homeland Security and oversaw the creation of the OHS and its conversion into a cabinet-level department. By 2004 the DHS had grown to 183,000 employees with an annual budget of $36.5 billion. Ridge resigned on November 30, 2004, to pursue a career in private industry. He was replaced by

Michael Chertoff on February 15, 2005. By 2008 DHS had more than 207,000 employees, and its yearly budget was approximately $45 billion.

Tom Lansford

See also: Bush, George Walker; Central Intelligence Agency (CIA); Cold War; Office of Defense Mobilization (ODM); Lawrence Livermore National Laboratory; Patriot Act; United States Army; Weapons of Mass Destruction (WMDs)

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DULLES, JOHN FOSTER (1888–1959)

U.S. secretary of state (1953–1959). Born in Washington, D.C., on February 25, 1888, John Foster Dulles studied under Woodrow Wilson at Princeton University and at the Sorbonne, earned a law degree from George Washington University, and in 1911 joined the prestigious Wall Street law firm of Sullivan and Cromwell. Appointed to the U.S. delegation at the 1919 Paris Peace Conference, Dulles unsuccessfully sought to restrain allied reparation demands on Germany.

Active between the wars in internationalist organizations, Dulles initially opposed American intervention in World War II. Once American belligerency seemed probable, however, Dulles focused intensely on postwar planning. A prominent Presbyterian, in 1941 he became chairman of the Commission to Study the Bases of a Just and Durable Peace, established by the Federal Council of Churches of Christ in America, representing 25 million American Protestants. Its blueprint for international reform, finished in 1943, urged the creation of international organizations to facilitate peaceful resolution of disputes among states; economic integration; arms control; and religious, intellectual, and political freedom—objectives all consonant with the 1941 Atlantic Charter.

Dulles also became prominent in Republican politics, advising presidential candidate Governor Thomas E. Dewey on international affairs. Seeking to secure bipartisan political support for his foreign policy, President Harry S. Truman included Dulles in virtually all major international meetings, beginning with the 1945 San Francisco Conference which drafted the final United Nations (UN) charter. Briefly appointed Republican senator for New York in 1948 to 1949, Dulles strongly supported creation of the North Atlantic Treaty Organization (NATO). He also supported European integration as a means of strengthening the continent's economies and militaries, a policy advocated by his friend, Jean Monnet, the French businessman.

By the late 1940s Dulles had become a dedicated anti-Communist. When Chinese Communists won control of the mainland in 1949, Dulles advocated American backing for Jiang Jieshi's (Chiang Kai-shek's) Guomindang (Kuomintang, Nationalist) regime on



Sir Anthony Eden (left) and John Foster Dulles (right). (Library of Congress)

Taiwan. In June 1950 when North Korea invaded the South, he urged U.S. intervention and the extension of protection to Taiwan. As a foreign affairs advisor to the Republican presidential campaign in 1952, Dulles argued the Truman administration had been timorous in merely "containing" Soviet Communism, when it should have moved to "roll back" Soviet influence in Eastern Europe.

Named secretary of state by President Dwight D. Eisenhower in 1953, Dulles deferred to the president's leadership, though the two men were very different in style. A supporter of Eisenhower's New Look defense policy of heavy reliance on nuclear weapons, Dulles rhetorically threatened to wreak "massive retaliation" against American enemies, tactics nicknamed "brinkmanship." In practice, however, he was often more cautious. Although Dulles' bellicose anti-Communist rhetoric alarmed many European leaders, his policies proved pragmatic, effectively respecting established Soviet interests in Europe. When discontented East Berlin workers triggered an uprising in East Germany in 1953, and again when Hungarians rebelled against Soviet rule in 1956, Dulles and Eisenhower welcomed refugees but offered no other support.

Dulles and Eisenhower ended the Korean War in 1953, pressuring both sides to accept an armistice, and established a series of alliances around Asia, supplementing the 1951 Japanese Security Treaty and ANZUS Pact with bilateral security treaties with South Korea and Taiwan, and the Southeast Asian

Treaty Organization (SEATO). When possible, Eisenhower avoided direct major military interventions, preferring to rely on covert operations orchestrated by the Central Intelligence Agency (CIA), headed by Dulles' younger brother Allen. The CIA played key roles in coups that overthrew left-leaning governments in Iran in 1953 and Guatemala in 1954. In Indochina in 1954, Dulles and Eisenhower withstood pressure from U.S. military leaders and, after Britain had declined to assist, refused to authorize air strikes to rescue trapped French troops surrounded by insurgent Viet Minh forces at Dien Bien Phu. Dulles attended the 1954 Geneva Conference, but would not sign the resulting accords that partitioned Vietnam. He instead called for country-wide elections within two years, a contest that Viet Minh leader Ho Chi Minh was widely expected to win. But Dulles and Eisenhower broke the accords and provided economic aid to the non-Communist South, seeking to build it up to ensure its independence.

Dulles and Eisenhower considered strengthening America's West European allies as their first priority. In March 1953 Soviet dictator Josef Stalin died, and new Soviet leaders advanced suggestions for German reunification and neutralization, policies that would have removed one of NATO's most significant members. Distrust on both sides made such proposals ultimately fruitless, though the former World War II allies agreed on a peace treaty with Austria that left that state neutral throughout the Cold War. Seeking to reinforce NATO, Eisenhower and Dulles backed proposals for a multinational European Defense Community (EDC), a plan France aborted in 1954.

Dulles' relations with Britain and France, whose imperialism he deplored, reached their nadir in 1956. In 1953 Egyptian Nationalist Gamal Abdel Nasser came to power. Initially he sought military and economic aid from the United States, but the Israeli lobby prevented such aid. Nasser then obtained arms from the Soviet bloc. This in turn led Dulles in 1956 to rescind an earlier American pledge to provide Nasser with funding for his Aswan Dam project, whereupon Nasser nationalized the Suez Canal, co-owned by the British and French governments. While openly joining Dulles in negotiations with Egypt, Britain and France covertly agreed with Israel on war against Egypt to regain the canal, mounting an invasion in early November 1956, just before the U.S. presidential election. Dulles and Eisenhower strenuously pressured all three powers to withdraw, which they eventually did, but the episode soured Anglo-American relations. Although Dulles hoped to align the United States with Nationalist forces around the world, the open growth of Soviet interest in the Middle East brought the announcement the following spring of the Eisenhower Doctrine, whereby the United States claimed the right to intervene militarily against indigenous or external Communist threats in the region. This provoked significant anti-Americanism throughout the world.

The emergence of Nikita Khrushchev as top Soviet leader in the mid-1950s seemed to promise a relaxation of Soviet-American tensions, as Khrushchev openly repudiated Stalinist tactics and called for peaceful coexistence between Communist and non-Communist nations. Eisenhower hoped to conclude substantive disarmament agreements with

Khrushchev. In practice, however, Khrushchev was often far from accommodating. Soviet success in launching the first space satellite *Sputnik* in 1957, Russian possession of nuclear and thermonuclear weapons, and Khrushchev's seeming readiness from late 1958 onward to provoke an international crisis over Berlin all alarmed American leaders, including the ailing Dulles, diagnosed in 1957 with cancer.

Though American "nation-building" efforts in both Taiwan and South Vietnam enjoyed apparent success, during the second Taiwan straits crisis in 1958, Dulles was notably more cautious in gratuitously challenging either Communist China or possibly by extension the Soviets. When his cancer worsened, Dulles resigned as secretary on April 15, 1959. Dulles died in Washington, D.C., on May 24, 1959.

Priscilla Roberts

See also: Eisenhower, Dwight David; Korean War; New Look Defense Policy; North Atlantic Treaty Organization (NATO); Soviet Union (USSR); Truman, Harry S.; Vietnam War

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E

EISENHOWER, DWIGHT DAVID (1890–1969)

U.S. Army general and president of the United States (1953–1961). Born in Denison, Texas, on October 14, 1890, Dwight Eisenhower grew up in Abilene, Kansas, and graduated from the U.S. Military Academy at West Point in 1915. Posted to France during World War I, he arrived only after the end of combat operations.

Following the war, Eisenhower served in a variety of assignments and attended both the Command and General Staff College at Fort Leavenworth and the Army War College in Carlisle, Pennsylvania. In 1930 he was assigned to the War Department in Washington, D.C. In 1936 he accompanied General Douglas MacArthur to the Philippines to train the new commonwealth's army.

In 1939 Eisenhower became chief of staff to the new Third Army. Transferred to the War Department in Washington following the Japanese attack on Pearl Harbor, he held increasingly responsible staff jobs, working in the War Plans Division where he helped to plan the Europe First strategy before his Summer 1942 transfer to London as commander of American and Allied forces in Britain. In November 1942 Eisenhower organized the North African campaign, and in late 1943 he launched the invasion of Italy. In December 1943 he was named to command the Allied forces scheduled to invade Western Europe in 1944, and in Spring 1945 he was promoted to General of the Army.

From 1945 to 1948 Eisenhower served as chief of staff of the army. He was president of Columbia University from 1948 to 1952. During this time he was actively involved with the Council on Foreign Relations and spent time in Washington, informally chairing the Joint Chiefs of Staff during Admiral of the Fleet William D. Leahy's illness. Eisenhower strongly endorsed President Harry S. Truman's developing Cold War policies, including intervention in Korea. Eisenhower's focus, however, remained the European situation



Gen. Dwight D. Eisenhower speaks to American paratroopers in England on June 5, 1944, just before they board their airplanes to participate in the first assault of the Normandy invasion that began early the next morning. (National Archives)

and Soviet-American rivalry. In January 1951 he took leave from Columbia to serve as supreme commander of the armed forces of the North Atlantic Treaty Organization (NATO).

In 1952 the Republican Party, desperate to choose a candidate who would be assured of victory, turned to Eisenhower. As a candidate he promised to end the Korean War, but otherwise continued Truman's Cold War policies. Eisenhower won the November elections, defeating Democrat Adlai Stevenson.

Some early scholars of the Eisenhower presidency suggested that Eisenhower ceded responsibility for foreign policy to Secretary of State John Foster Dulles; but as more archival material became available, it became apparent that Eisenhower was in fact quite actively engaged in foreign policy decisions. Under Eisenhower, U.S. defense commitments around the world solidified into a network of bilateral and multilateral alliances. While maintaining its existing commitments to NATO, the Rio Pact, Japan, and the ANZUS South Pacific alliance, the United States established the Southeast Asia Treaty Organization (SEATO) in 1954, associated itself with the Middle Eastern Baghdad Pact in 1959, and signed bilateral security treaties with South Korea and the Republic of China on Taiwan. m

A fiscal conservative uncomfortable with high defense budgets, Eisenhower

introduced the New Look strategy of relying heavily on nuclear weapons rather than on conventional forces. Critics of the New Look defense strategy complained that it left the United States unprepared to fight limited wars.

In March 1953 Soviet dictator Josef Stalin died, to be replaced first by a triumvirate of Soviet officials headed by Georgy Malenkov and then in 1955 by Nikita Khrushchev. Stalin's death may well have facilitated efforts to end the Korean War, although Soviet proposals in 1953 to neutralize and reunite all Germany proved fruitless. As president, Eisenhower fulfilled his campaign pledge to end the Korean War, seemingly threatening to employ nuclear weapons unless an armistice agreement was concluded.

Alarmed by the increasing destructiveness of nuclear armaments, Eisenhower was the first president to attempt, albeit rather unsuccessfully, to reach arms control agreements with the Soviet Union. British Prime Minister Winston Churchill, in office when Eisenhower first became president, strongly urged him to reach such understandings. Eisenhower's efforts began with his "Atoms for Peace" speech of December 1953, developed into his Open Skies Proposal at the 1955 Geneva Conference, and evolved into lengthy negotiations for a treaty to restrict atmospheric nuclear testing, which by the time the 1959 Geneva Conference was held seemed likely to be successful.

In February 1956 Khrushchev repudiated much of Stalin's legacy, including his personality cult and his use of terror against political opponents, a move suggesting that the potential existed for a Soviet-American rapprochement. Soon afterward, Khrushchev expressed his faith that it might be possible for the East and West to attain a state of peaceful coexistence with each other. Progress toward this end was patchy, however. From 1958 until 1961 Khrushchev made repeated attempts to coerce and intimidate the Western powers into abandoning control of West Berlin.

In September 1959, after a protracted Geneva conference on disarmament, Khrushchev visited the United States, a trip that included an address to the United Nations (UN), an apparently fruitful meeting at Camp David, a stay on Eisenhower's Maryland farm, and a presidential tour of the nearby Gettysburg battlefield. The much-vaunted spirit of Camp David, however, soon evaporated. In May 1960 a long-planned summit meeting between Eisenhower and Khrushchev ended in fiasco after Russian artillery shot down an American U-2 spy plane over Soviet territory on May 5, shortly before the meeting began. Eisenhower took full responsibility for this event but refused to yield to Khrushchev's demands that the United States apologize and cease all such overflights. In response, Khrushchev angrily canceled the summit.

As the Bandung Non-Aligned Movement gained strength around the developing world—especially in decolonizing Asia, Africa, and the Middle East where nationalist sentiments frequently ran high—Eisenhower sought to entice third world nations into the U.S. camp. In July 1956 the United States rescinded an earlier offer to grant Gamal Abdel Nasser, Egypt's new and fiercely nationalist president, a loan for the Aswan Dam project, leading Nasser to seize the Suez Canal from France and Great Britain. Eisenhower nonetheless refused to endorse the invasion of Egypt by those two nations, in conjunction with Israel, in

late October 1956 and instead put heavy pressure on them to pull their forces back, which soon proved effective.

Shortly afterward, the Soviet Union issued a statement threatening to intervene should there be any further Western threats to Middle Eastern countries. The United States, suspicious of any Soviet initiative that might jeopardize Western control of Middle Eastern oil, responded promptly in January 1957 with the Eisenhower Doctrine, pledging American military and economic assistance to any Middle Eastern country that sought to resist communism. Except for Lebanon and Iraq, few nations welcomed this doctrine, since most countries in the region believed that they had more to fear from Western imperialism than from Soviet expansionism. In 1958 Egypt and Syria encouraged Pan-Arab sentiment by their brief union in the United Arab Republic. Civil war broke out in Lebanon as Muslims sought to replace the predominantly Christian government with an Arab state. Eisenhower responded by landing U.S. Marines on Beirut's beaches to restore order.

As president, Eisenhower was generally cautious in risking American troops in overseas interventions. He boasted proudly that during his presidency no American soldier lost his life in combat duty. Despite Republican claims during the 1952 presidential campaign that they would roll back communism across Eastern Europe, when workers rose against Soviet rule in East Berlin in June 1953 and again when Hungarians attempted to expel Soviet troops in Autumn 1956, Eisenhower refused to intervene. Although he would not recognize the People's Republic of China (PRC), he reacted cautiously in the successive Taiwan Straits crises of 1954–1955 and 1958, leaving ambiguous the likely U.S. reaction to a Chinese attack on the Guomindang-held offshore Jinmen (Quemoy) and Mazu islands.

In 1954 Eisenhower declined to commit American forces in Indochina after French troops were defeated at Dien Bien Phu. When the 1954 Geneva Accords ending the First Indochinese War and temporarily partitioning Vietnam until countrywide elections could be held were announced, Eisenhower refused to recognize them. His administration encouraged the government of the southern Republic of Vietnam (ROV, South Vietnam) in its refusal to hold the elections mandated for 1956 and provided military and economic assistance to bolster its independence. Eisenhower justified these actions by citing the domino theory—that if the United States permitted one noncommunist area to become communist, the infection would inevitably spread to its neighbors.

Eisenhower also relied heavily on covert activities, authorizing the Central Intelligence Agency (CIA) to back coups in both Iran and Guatemala in 1953 and 1954 and encouraging it to undertake numerous other secret operations. These included plans for an ill-fated coup attempt against Cuba's communist leader, Fidel Castro.

Rather ironically, in his Farewell Address of January 1961, Eisenhower warned that Cold War policies tended to undercut the democratic values that the United States claimed to defend. He also expressed his concern that high levels of defense spending had created a military-industrial complex with a vested interest in the continuation of international tensions. Nevertheless, Eisenhower himself contributed to its development by

engaging the United States in the Space Race and mounting a major educational and industrial drive to enable the United States to surpass Soviet scientific achievements.

After leaving office in 1961, Eisenhower backed American intervention in Vietnam, an area that he specifically warned his successor John F. Kennedy not to abandon. In retirement Eisenhower wrote two volumes of presidential memoirs. He died in Washington, D.C., on March 28, 1969.

Priscilla Roberts

See also: Central Intelligence Agency (CIA); China, People's Republic of; Dulles, John Foster; Kennedy, John Fitzgerald; Korean War; New Look Defense Policy; North Atlantic Treaty Organization (NATO); Soviet Union, The (USSR); Space Race; Truman, Harry S.; Vietnam War; World War II

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EISENHOWER'S FAREWELL ADDRESS 1961

On January 17, 1961, in the waning days of his presidency, Dwight D. Eisenhower gave a nationally broadcast farewell speech that became famous for its warning of a looming "military-industrial" complex in the United States. Like President George Washington's farewell address almost two centuries before, Eisenhower's address garnered instant recognition as an important corollary to U.S. policy making. In the speech, Eisenhower cautioned Americans to beware of a growing military-industrial complex at the federal level that would seek to create—or perpetuate—military and diplomatic crises to keep defense spending artificially high. He pointed to both those in the military establishment and in defense-related industries as the likeliest sources of such a lobby.

As a career military man, Eisenhower was surprisingly critical of the military and military-related industries. Then again, he knew the inner workings of the military establishment better than any president in recent history, and so that perspective gave him more freedom to sound the warning about military excesses. Eisenhower was alarmed about the military-industrial complex because he believed that if it went unchecked, it would erode the nation's fiscal, political, and ideological foundations. He specifically pointed out that high defense expenditures meant high taxes, which would stymie long-term economic growth and divert money away from areas that were in need of increased development. He also believed that an ascendant military-industrial complex might ultimately impinge on civil and



U.S. President Dwight Eisenhower makes his farewell address to the nation in a television-radio broadcast three days before the end of his term in Washington, D.C., Jan. 17, 1961. (AP/Wide World Photos)

constitutional liberties, perhaps turning the United States into a mirror image of its Cold War totalitarian foes. At its core, Eisenhower's speech was a warning about the excesses precipitated by the post-World War II national security state, or as some have referred to it, the "garrison state."

There are several interesting dilemmas implicit in Eisenhower's warnings. First, they came at the very end of his presidency, rather than the beginning. Indeed, although Eisenhower tried hard to hold down military spending and shrink the size of the military during his two terms in office, he was only modestly successful at best. Defense outlays did go down from 1953 to 1955 by about 20 percent, but much of that was due to the end of the 1950–1953 Korean War and the attendant rearmament program. By 1956 the defense budget began to increase once more. Indeed, Eisenhower kept defense spending much higher than it had been in 1950, just prior to the Korean War, when it was just $13 billion per year. The defense budget averaged more than $50 billion per year over Eisenhower's eight years in office, so there was no deep or drastic cut in military spending.

Second, the national security state grew demonstrably during Eisenhower's tenure, especially with the advent of massive retaliation and missile-based nuclear weapons. The emphasis that the Eisenhower administration placed on nuclear weapons and hi-tech weaponry only enhanced the importance of defense industries and tightened the bonds between the military establishment and defense contractors.

On the other hand, some have argued that Eisenhower's address was in part a reaction to Democratic allegations during the 1960 campaign that the United States had allowed a dangerous "missile gap" to emerge between it and the Soviet Union. As it turns out, if any gap had existed, it was in Americans' favor rather than the Soviets'. This became a major campaign issue, but Eisenhower was unable to refute Democratic charges because to do so would have been a breech of national security. Surely, Eisenhower was frustrated by this and he believed that the Democrats had created a "crisis" in part to increase defense spending, which John F. Kennedy had already pledged to do.

Still others point out, with considerable evidence to back it up, that Eisenhower had consistently tried to trim the excesses of the military-industrial complex and had enjoyed some successes in doing so. For example, he strongly resisted the advice of his own military and political advisors who urged him to increase defense spending significantly after the Soviets launched the Sputnik satellite in October 1957. Eisenhower knew that the United States had indeed not fallen behind the Soviet Union in rocket or missile technology and thus ignored the herd mentality that pervaded the nation at the time. Likewise, he virtually disowned the November 1957 Gaither Report, an alarming document created by the President's Science Advisory Committee that urged the United States to accelerate defense spending by building hundreds of fall-out shelters and pouring billions more into missile technology.

Finally, there is a little-known speech that Eisenhower gave in April 1953, only three months into his presidency, in which he stated: "Every gun that is made, every warship launched, every rocket fired, signifies . . . a theft from those who hunger and are not fed, those who are cold and not clothed. This world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children." Here it is clear that Eisenhower understood full well the implications of the national security state. Like his farewell address, this speech was remarkable for a modern president, all the more so because he had been a military man for his entire adult life.

Paul G. Pierpaoli

See also: Cold War, The; Defense Industry Lobbyists; Eisenhower, Dwight David; Kennedy, John Fitzgerald; Korean War; Massive Retaliation; Missile Gap; Soviet Union, The (USSR); Weapons, Nuclear

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F

FILM

There has been a strong mutually supportive relationship between the military and the film industry since the advent of this new medium. Starting with the Spanish-American War, filmmakers used faked scenes of combat to provide visually appealing imagery. Documentary filmmakers in both World Wars also used fictional scenes to reproduce combat, which raises legitimate questions about the veracity of what the audience was seeing on the screen.

Theatrical filmmakers, with no pretensions about making nonfiction, have been attracted to military topics because of the powerful visual images and storylines that military life offers. The armed services, on the other hand, have seen motion pictures as good propaganda and have attempted to help productions that convey positive messages about military service. This support has generally taken the form of loaning equipment and personnel to film crews. Given the expense of weapon systems in the 20th century, such loans often are the difference maker in a film getting made or not.

The American film industry located in southern California has shown a marked preference for making pictures about topics involving the U.S. military. This symbiotic relationship began in the early 1910s. The film industry made pictures that had strong propaganda themes during World War I. When the war ended and public mood changed, studios lost interest in making movies about the military. This decline in popularity was cyclical and before the end of the 1920s Hollywood was again making war pictures. During this decade, the War and Navy Departments developed formal regulations to guide their support. World War I was a popular topic during the interwar period, with *Wings* (1927), *All Quiet on the Western Front* (1930), and *Sergeant York* (1941) being some of the best known films of this era. The very different take these three films had of World War I is also a reflection of the turmoil public opinion was going through about the proper place of the United States in world affairs.



George C. Scott in a 20th Century Fox handout photo from the 1970 movie *Patton*. Scott won an Oscar for the role but refused to accept it. (20th Century Fox/AP Photo)

With the start of World War II, the focus of major theatrical productions began to change. In 1940 and 1941 Hollywood cranked out a number of military comedies instead of action pictures. These included the Three Stooges in *Boobs in Arms* (1940), Bob Hope's *Caught in the Draft* (1941), and three from the comedy team of Abbott and Costello: *Buck Privates* (1941), *In the Navy* (1941), and *Keep 'Em Flying* (1941). Even though these films were comedies and hardly serious, the armed services could and did object to key elements in their story lines. For example, the U.S. Navy insisted that a ship-handling scene in *In the Navy* be rewritten since it was not realistic. The studio compromised and turned the disputed sequence into a dream scene.

After the United States entered the war, combat action pictures became extremely popular. Many of these entirely fictional accounts were set in the then contemporary World War II. Halfway through the war, Hollywood's focus changed and studios began to present films about actual events. Even though the military was busy fighting the war, support for the film industry was still extended whenever possible. For example, the U.S. Army Air Forces (AAF) gave MGM studios two B-17 bombers to help them make *Thirty Seconds Over Tokyo* (1944).

As was the case after World War I and would be the case after all other American wars in the 20th century, interest in war films ended in the immediate

aftermath of peace. This decline ended at the end of the decade though. During the late 1940s and early to mid-1950s, Hollywood produced the first commercial successful war films which were also impressive works of art. These films include *Command Decision* (1948), *Sands of Iwo Jima* (1949), *Battleground* (1949), *From Here to Eternity* (1953) *Stalag 17* (1953), *The Caine Mutiny* (1954), and *Mister Roberts* (1955). The Academy of Motion Picture Arts and Sciences awarded or at least nominated all of these films for some type of major Academy Award.

In many cases, though, officers at the Pentagon insisted on revisions to story lines. In *From Here to Eternity,* an officer who is the villain in the film resigns at the end of the picture rather than receiving a promotion, which is what happened in the James Jones novel upon which the film is based. In return, the Army allowed Columbia Pictures to shoot the film at Schofield Barracks, Hawaii, where the film is set. Real soldiers also served as extras, giving the production authenticity. With *The Caine Mutiny,* the Navy was less than eager to help with a film about the revolt of a ship's crew, which naval officers understandably saw as putting their service in a poor light. Months of negotiations followed in which the studio refused to change the title, but did tone down some scenes.

In the 1960s the film industry—long before Vietnam—began offering more critical views of the military. The films *Fail Safe* (1964), *Dr. Strangelove* (1964), and *The Bedford Incident* (1965) all questioned military control of nuclear weapons as being less than absolute. In *Seven Days in May* (1964) an air force general attempts to stage a military coup d'etat. *The Americanization of Emily* (1964) is a comedic antiwar film. The Department of Defense refused to cooperate with the making of these films. This refusal forced filmmakers to get creative. For example, while filming *Seven Days in May,* director John Frankenheimer resorted to using a small camera positioned in a car and in clandestine fashion filmed actor Kirk Douglas as he entered the actual Pentagon. Douglas was in the uniform of a U.S. Marine Corps colonel and drew salutes from military personnel who had mistaken him for a real officer. The set designers for *Dr. Strangelove* had only one picture they could use to design the cockpit of a B-52, which they used to guess about many details, using comparisons between B-52s and B-29s as a reference. Officers of the U.S. Air Force that visited during filming said the sets were fairly accurate. As a result, director Stanley Kubrick began worrying about having to answer questions from Federal Bureau of Investigation (FBI) special agents about how he made an accurate representation.

A number of films during the 1960s were still made with Department of Defense cooperation. Military support became less relevant to World War II era films since the armed services did not have vintage equipment. In the late 1960s, *Patton* (1970) was shot in Spain because the Spanish Army still used U.S. equipment from the 1940s.

In the wake of the Vietnam War, military films lost their popularity. While *Midway* (1976) was a commercial success, *MacArthur* (1977) was not. There was little the Pentagon could offer the filmmakers of these productions, given their need for antiquated equipment, but the Defense Department could offer

much support to those individuals making motion pictures about the Vietnam War. For most of the 1970s Pentagon public affairs officers were reluctant to extend this support given the focus of films such as *Go Tell the Spartans* (1978), *The Deer Hunter* (1978), *Coming Home* (1978), *The Boys in Company C* (1978), *The Great Santini* (1979), and *Apocalypse Now* (1979).

This attitude changed in the 1980s. The election of Ronald Regan as president of the United States lead to vast increases in military spending and a rehabilitation of the armed services in public esteem. "Reagan era films" became a term to describe motion pictures that portrayed the military and its personnel in a positive light. These films included *First Blood* (1982), *Red Dawn* (1984), *Missing in Action* (1984), *Rambo: First Blood Part II* (1985), *Top Gun* (1986), *Heartbreak Ridge* (1986), *The Delta Force* (1986), *Iron Eagle* (1986), *Hamburger Hill* (1987), *The Hanoi Hilton* (1987), *Bat *21* (1988), *The Presidio* (1988), and *Rambo III* (1988). These pictures often disparaged the attitudes of the 1970s and politicians of the Democratic Party who were the filmmakers blamed for the failures of that broken decade.

There were dissenters to this genre though. Oliver Stone's *Platoon* (1986), Stanley Kubrick's *Full Metal Jacket* (1988), and Brian DePalma's *Casualties of War* (1989) were all major departures. Most critics consider these three titles to be better art than most other Regan era films. What is significant about these productions is that the motion picture industry had developed enough financial resources in the 20th century that all three directors could make these films without any official support or approval from the Department of Defense.

Nick Sarantakes

See also: Department of Defense, The; Reagan, Ronald Wilson; Vietnam War; Weapons, Nuclear; World War I; World War II

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FLEXIBLE RESPONSE

In response to the growing threat posed by the Soviet Union's developing nuclear arsenal in the immediate aftermath of the October 1957 launch of *Sputnik,* as well as an increased commitment to the support of "wars of national liberation," the basic tenets of President Dwight D. Eisenhower's nuclear strategy of Massive Retaliation came into question. The policy of Flexible Response was the direct reaction to the seemingly dangerous and heavy-handed demands of Massive Retaliation. The basic tenets of the Flexible Response emerged from two azimuths—one internal to the administration and one external to the administration—to converge into a new strategic policy for the United States and the North Atlantic Treaty Organization (NATO).

At its most basic level, the strategy of Flexible Response called for the reinvestment in the development of conventional forces in addition to the strategic nuclear forces (SNF) and tactical nuclear forces emphasized under Eisenhower. The objective of the new strategy rested on the belief that the United States had to



During World War II, Maxwell D. Taylor bravely led the 101st Airborne Division on several occasions and became the first American general to fight in France. In the cold war, he was critical of American over-reliance on nuclear weapons and advocated a "flexible-response" for fighting guerrilla wars. Taylor went on to publish five books about national security issues and is considered an architect of early American involvement in the Vietnam War. (Hulton Archive/Getty Images)

develop a more robust and "flexible" defense strategy designed to provide the U.S. president with various options encompassing the full spectrum of threats from low intensity guerilla warfare to thermonuclear war.

The internal force advocating the need for the United States to shift away from the tenets of Massive Retaliation came from U.S. Army Chief of Staff Maxwell Taylor. As chief of staff from June 1955 to June 1959, Taylor slowly questioned the validity of adhering to a strategic policy that threatened massive nuclear exchange for any potential transgression. Cognizant of National Intelligence Estimates (NIEs) that indicated the Soviet Union's investment in the research, development, and procurement of strategic nuclear forces, Taylor recognized the need to maintain and improve the capabilities of America's nuclear arsenal. However, he also recognized a fault in the tenets of Massive Retaliation, which left the United States searching for a credible deterrent in dealing with low intensity conflicts. The solution called for a strategic concept that provided flexibility. Despite his tenure and status as chief of staff of the U.S. Army, Taylor ran into significant opposition from within the administration. Frustrated, he resigned in June 1959.

In his book, *The Uncertain Trumpet,* Taylor outlined the need for the United States to move toward the development of a strategic policy that embraced not only strategic nuclear threats but also growing threats posed by wars of liberation, insurgencies, and low-intensity conflicts. The ideas and opinions offered by Taylor caught the attention of Senator John F. Kennedy, which Kennedy used in campaign for the presidency. Once elected president of the United States, Kennedy recalled Taylor to serve in his administration. Kennedy and his Secretary of Defense Robert S. McNamara advocated the shift toward a strategic policy based on the points raised by Taylor.

Flexible Response under the Kennedy administration rested upon the tenet that the new strategic policy provided the United States with "balance" between the nuclear and conventional wars. McNamara specifically advocated the new position in a series of speeches from 1962 to 1965. In one of his first speeches on the topic before the American Bar

Association Foundation in Chicago during February 1962, McNamara stated, "It is clear we require a wider range of practical alternatives to meet the military challenges." McNamara in his statement directly refers to the need of the United States to develop a strategic concept that embraced contingencies designed to counter the Soviet Premier Nikita Khrushchev's overt pledge to expand his support of wars of liberation throughout the globe. To handle this threat, Taylor and McNamara recommended that the United States reinvest in the conventional war fighting capabilities, which had taken a subordinate position, under Eisenhower's policies of New Look and Massive Retaliation.

In addition to the need to expand the conventional capabilities of America's military forces, the Kennedy administration also used the new policy to emphasize the need to improve the command and control (C2) infrastructure of U.S. strategic and tactical nuclear weapons. Therefore, the internal catalyst for the United States to shift away from the tenets of Massive Retaliation to Flexible Response rested upon an identified need to build an increased range of options available to U.S. presidents during times of crisis. Although the internal pressure to shift away from Massive Retaliation was enough by itself to prompt a thorough review of U.S. strategic policy, the United States also encountered external pressure from NATO and European allies.

As early as 1952, NATO wrestled with a significant disparity in conventional forces vis-à-vis Soviet strength. Although the objective of the Lisbon Force goals was to address this imbalance by building an additional 71 NATO divisions to match the 125 Soviet divisions, bringing the conventional force balance into approximate parity. The goal was never achieved. As a result, NATO only built an additional 5 divisions to bring NATO strength to 30 divisions total. To compensate for this significant disparity in conventional forces, the Eisenhower administration recommended the reliance on tactical nuclear weapons to compensate for the disparity in conventional forces in Europe. The twin policies of New Look and Massive Retaliation assisted in advancing this vision of balancing the lopsided force structure in Europe between conventional and nuclear forces.

General Lauris Norstad, the Supreme Allied Commander in Europe (SACEUR), as late as 1957 advanced an argument in which he recommended the need for NATO to build conventional forces as a "means of holding up a Soviet invasion." The basic elements of this theory, called the "Shield and Sword," envisioned the use of conventional force to provide resistance in case of a Soviet invasion. Once the conventional forces ("the shield") had blunted the invasion, nuclear weapons ("the sword") would be used to mass effects.

The main problem that European governments (mainly Germany, France, and Great Britain) saw was that the conventional forces in the "Sword and Shield" were viewed as virtually disposable. The governments of these three nations could not advocate a position that recommended building additional NATO forces that were to be used in a very limited manner. As a result, European nations generally tended toward reliance on the tenets of Massive Retaliation because they viewed the new ideas as shifting the center of gravity from the United States to the European theater of war.

The Kennedy administration therefore had to deal with significant pressure from European allies that believed the tenets of Massive Retaliation remained in their best interests. To convince the European allies that the new policy of Flexible Response was in the best interest of the Alliance and met the demands of the security environment, McNamara spoke about the need to bolster the defensive capabilities of NATO with conventional forces, by asking all members to "devote resources to the task." This did not satisfy the European allies.

The external pressure from NATO allies tempered the Kennedy administration's original ideas about fundamentally shifting the strategic policy of NATO. In turn, McNamara had to take a middle position in which the administration continued to advocate a need to build conventional forces, while also maintaining NATO's reliance on nuclear forces.

The policy of Flexible Response provided the United States and NATO with an expanded military capability beyond the nuclear emphasis generated during Eisenhower's tenure as president. While the United States easily saw the need to invest and develop conventional forces, NATO questioned the need to move away from a strong reliance on nuclear weapons. Until 1968, the administrations of John F. Kennedy and Lyndon Baines Johnson worked at refining the policy for both the United States and NATO. When Richard M. Nixon became president, the nuclear policy and strategy of the United States once again evolved.

Sean N. Kalic

See also: Eisenhower, Dwight David; Germany, Federal Republic of; Johnson, Lyndon Baines; Kennedy, John Fitzgerald; Massive Retaliation; McNamara, Robert Strange; New Look Defense Policy; Nixon, Richard Milhous; North Atlantic Treaty Organization (NATO); Soviet Union (USSR); United Kingdom; United States Army; Weapons, Air; Weapons, Land; Weapons, Nuclear

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FORD, GERALD RUDOLPH (1913–2006)

Prominent U.S. congressman, vice president (1973–1974), and president (1974–1977). Gerald Ford, born Leslie Lynch King Jr. on July 14, 1913, in Omaha, Nebraska, was brought up by his mother and stepfather in Grand Rapids, Michigan. After graduating from the University of Michigan where he was a star football player, Ford received a law degree from Yale University in 1941. He served in the U.S. Navy in World War II, attaining the rank of lieutenant commander.

Ford returned to Grand Rapids to practice law before entering politics and was first elected to the House of Representatives in 1948. He remained in the



President Gerald Ford presides over an evening meeting of the National Security Council to discuss the evacuation of Saigon on April 28, 1975. (Gerald Ford Library)

House for 25 years and became an influential force among moderate Republicans in Congress. From 1965 to 1973, Ford was House minority leader.

When Vice President Spiro T. Agnew was forced to resign from office after being charged with tax evasion, President Richard M. Nixon appointed Ford to the vice presidency on October 10, 1973. By that time, Nixon was already embroiled in the Watergate scandal, which in turn would force his own resignation less than a year later. When Nixon resigned the presidency on August 9, 1974, Ford automatically succeeded him to become the 38th president of the United States.

A plainspoken and unassuming man, Ford's immediate goal as president was to restore public confidence in the presidency, which had been badly shaken by Watergate and the executive excesses of the Nixon presidency. Lacking a broad political base and with no popular mandate, Ford tried without great success to bolster the spirits of a nation left deeply divided and scarred by both the Vietnam War and the debilitating Watergate political crisis. He also attempted to revive the faltering economy, which had been seriously weakened as a result of the first energy crisis that had begun in 1973. The crisis had brought about the quadrupling of oil prices in less than a year's time.

The American economy was plagued by galloping inflation combined with a stubborn recession and high unemployment, phenomena dubbed "stagflation." Without doubt, stabilizing the nation's economic woes was Ford's primary domestic imperative. Neither the president nor Congress, which reduced the federal budget, was able to remedy the economic situation.

Ford's most controversial act as president was his issuance of a full and

unconditional pardon for Nixon, which he announced on September 8, 1974. Ford defended his action by arguing that he was bringing closure to the Watergate affair. Much of the public was embittered by the pardon, which ironically occurred just a week before Ford granted only a partial pardon to Vietnam War resisters and military deserters.

In foreign affairs, Ford continued to pursue the Nixon-Kissinger policy of détente with the Soviets, managing to reach a new arms limitation agreement during his short tenure in office. He also helped stabilize the Middle East by providing aid to both Egypt and Israel and by brokering an interim truce agreement between the two nations. Finally, he was proactive in maintaining America's international standing and prestige after the humiliating collapse of both the Republic of Vietnam (ROV, South Vietnam) and Cambodia.

Ford's short tenure created little significant changes in the established Military-Industrial Complex; even in the wake of Vietnam, the United States was dedicated to modernization and continued procurement of military hardware. While the U.S. military underwent doctrinal changes, the constant requests for qualitative and quantitative supremacy remained.

Ford lost the 1976 election to former Georgia Governor Jimmy Carter by one of the narrowest margins in U.S. history. Ford then went into retirement. Despite his limited successes, he provided a measure of stability to a nation shell-shocked by political scandal and economic turmoil, which in itself was no easy task. Ford died at his home in Rancho Mirage, California, on December 26, 2006.

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See also: Nixon, Richard Milhous; Vietnam War

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FOREIGN RELATIONS

The foreign relations of the United States encompass all of the economic, political, and social interactions between the United States and other nations. However, the term refers more specifically to the deliberate policies and practices of the federal government, most of which are carried out under the supervision of the president through the secretary of state. Foreign relations are influenced by many factors, both international and domestic, with the result that the interactions of America with other nations have become increasingly complex. Prior to World War II, the United States tended to remain politically isolationist, although by the turn of the 20th century, American foreign relations placed an increasing emphasis upon economic expansion through access to foreign markets. Over the past two centuries, American influence has become dominant in the Western Hemisphere, and has become increasingly powerful within the global community. The nation's military and economic power



Political cartoon from 1919 showing Henry Cabot Lodge, chairman of the Senate Foreign Relations Committee, escorting a battered figure on crutches ("Peace Treaty") out of a room labeled "Operating Room, Senate Committee on Foreign Relations." Conservative senators had grave concerns over the provisions of the Treaty of Versailes that ended World War I and provided for the establishment of the League of Nations. (Library of Congress)

after 1945 allowed the United States to become one of two superpowers in the Cold War era, and to emerge as the sole superpower in the world after the collapse of the Soviet Union in 1991. In the unipolar world of the 21st century, the United States has become increasingly willing to intervene in international affairs through military force or economic coercion, with the result that many less powerful nations have come to regard the United States not as an inspiration, but rather as a global entity bent upon planetary hegemony.

American power in world affairs derives from the two key sources. The American economy, by far the largest and most diversified in the world, depends largely upon geography and the natural resources of the nation. With unfettered access to both the Atlantic and the Pacific Oceans, the United States has the ability to engage in massive international trade throughout the world. This access was greatly enhanced by the creation of a transcontinental railway and the construction of the Panama Canal, each of which allowed the raw resources of the west to reach the industrial center of the nation in the east, and to return to markets worldwide. The total gross national product of the United States has

exceeded that of every other nation for the past century, and no economic competitor is currently close to matching American economic output.

The other key source of American power in the world is the American military. Prior to American involvement in World War II, the American military traditionally remained extremely small in peacetime relative to the population of the United States. This allowed significantly smaller financial outlays for national defense, enhancing the amount of resources available for economic development. Instead the United States relied upon geographic position and the lack of a significant military threat on the North American continent, with the result that most American military forces could be created after becoming a belligerent. When compared to the fiscal outlays of European states for standing military forces and defensive fortifications, this approach represented a tremendous economic advantage. Not until the end of World War II did the United States maintain a significant peacetime military, and after the end of the Cold War, American military forces began to revert to their traditional small size.

One primary reason for America pursuing an isolationist policy in the 18th and 19th centuries was the small size of the American population relative to the area of the nation. Most American expansionist energies were devoted to the expansion of American civilization into the interior of the North American continent. The American population of the 19th century remained too small to represent a direct threat to the traditional imperial powers of Europe. When coupled with the small American navy, the United States could not pursue a forceful diplomacy. Attempts to invade and conquer Canada, a part of the British Empire, met with disaster during both the American Revolution and the War of 1812. By 1818 the United States and Britain set the permanent border of the nations; this border remains the longest unfortified border in the world. Unlike the diplomatic stance with Canada, American relations with Mexico, which secured independence from Spain in 1821, proved less harmonious. In reaction to American settlers in Texas declaring independence in 1835, Mexican and American relations declined to the point of war in 1846. The Mexican War resulted in the conquest and occupation of Mexico, and ended with the cession of the American southwest from Mexico to the United States through the Treaty of Guadalupe Hidalgo.

In the first half of the 19th century, the United States essentially declared hegemony over Latin America through the Monroe Doctrine, boldly asserting that the United States would not allow further colonization in the Western Hemisphere. For a time this caused the United States to be viewed as the protector and guarantor of Latin American independence, even though the United States did not have the capability to enforce the decree. Given that most Latin American nations had already been claimed as colonial territories, and that the wave of independence movements had barely begun, the Monroe Doctrine proved largely irrelevant in practice. The most significant challenge to the doctrine came during the American Civil War, when the United States remained too focused upon internal matters to present any form of challenge.

The foreign relations of the United States during the American Civil War primarily focused upon preventing foreign powers from recognizing the

Confederate States of America. Such recognition would not only lend legitimacy to the Confederate cause, but might also be accompanied by military assistance. In reality European nations could not recognize a slaveholding nation like the Confederacy without facing significant internal turmoil. While the British textile industry in particular depended upon Southern cotton, the bumper crop of 1860 served to keep the textile mills running through 1861. In early 1862 Union forces captured New Orleans, which held more than two million bales of cotton within its warehouses. The cotton, declared contraband of war by the American government, soon flooded the international market, undercutting any economic pressure the Confederacy could place upon European nations. Likewise, the massive growth of Union military forces provided a deterrent to European recognition of the Confederacy—any such recognition might trigger a Union effort to conquer colonial possessions in the Western Hemisphere.

After the Civil War the focus of American foreign relations remained upon economic relationships and the peaceful resolution of conflicts outside of the Western Hemisphere. However, a growing sense of national pride and a desire for access to closed colonial markets led to a strong imperial push within the American government. When coupled with a modern navy and the official closure of the American western frontier in 1890, the rising American imperialism drove the United States into the Spanish American War. The American victory brought the seeds of an empire, in the form of territorial acquisitions in the Caribbean and the Pacific, but with new colonial possessions such as Puerto Rico and the Philippines came new social and political burdens as well. Neither offered untrammeled access to international markets, although the Philippines did provide a valuable trading base for exports to China. The war did whet American appetites, allowing the nation to flex its military might without risking significant damage by confronting a world power.

American foreign relations in the early 20th century built upon the hegemony of the Monroe Doctrine through the Roosevelt Corollary. President Theodore Roosevelt announced that the United States would intervene in the internal affairs of Latin American nations as it saw fit. This first took the form of invasions to prevent European military action in Latin America. European creditors had loaned enormous amounts of capital to Central and South American nations, who then defaulted upon the loans. The United States engaged in military interventions to capture customs houses in various nations, assuming control over imports and exports and forcing the repayment of European loans. While this action pleased European nations, which recouped their losses without expending any effort, it also angered Latin American nations and transformed how the United States was perceived in the Western Hemisphere. In one act, Roosevelt turned the United States into an oppressive neighbor bent upon regional dominance rather than a benevolent protector holding off the colonial impulses of European nations. It enhanced the American standing in the world, but permanently damaged American relations in the immediate vicinity. Roosevelt also assumed another role previously reserved for European

powers when he agreed to mediate an end to the Russo-Japanese War in 1905. Neither Russia nor Japan left the negotiations pleased with the outcome, leaving Roosevelt secure in the belief that he had mediated the treaty fairly.

Roosevelt's successor, William H. Taft, altered the American approach to foreign relations through his concept of "Dollar Diplomacy." Taft firmly believed that American capital investment in foreign nations could prove far more effective than any amount of military force. By pursuing policies that were friendly to the globalization of American business, Taft not only sought to increase American commerce, but also to enhance American prestige in the world. This approach, which seemed high-handed and cold to some nations, proved remarkably successful in enhancing American influence in the Western Hemisphere. It began with the federal government encouraging American financial institutions to purchase Latin American debts from European nations, but soon expanded to include the extension of American credit to these countries. This not only enhanced American power in the region without requiring military intervention, it also prevented European nations from profiting in Latin America and removed incentives for European military interventions in the area.

When World War I erupted in Europe, the United States officially remained neutral, although President Woodrow Wilson attempted to secure trading rights with all of the belligerents. The British blockade of Germany prevented significant trade with the Central Powers at the same time that German U-Boats also represented a significant danger for any American merchant shipping intended for Britain or France. For almost three years, the United States maintained neutrality, occasionally threatening intervention to obtain favorable diplomatic outcomes. As nonbelligerents, American diplomats served many functions during the war, including undertaking the role of Protecting Power for prisoners of war. This entailed inspecting the prison camps of each belligerent to determine if each side adhered to international law regarding the millions of soldiers held in captivity during the war. A series of German provocations pushed the United States to enter the war as an "Associated Power" in April of 1917. These included the German pursuit of unrestricted submarine warfare in 1917 and the Zimmerman Telegram (1917), an intercepted communiqué from Germany offering an alliance with Mexico if the United States entered the conflict. In exchange for a Mexican attack upon the United States, Germany promised the return of the territory lost in the Mexican War once the conflict ended. Mexican leaders, recognizing that Germany would have no means to enforce such a promise, promptly and publicly declined the offer.

Wilson believed that the United States could enter the war, tip the scales in favor of Allied victory, and strongly influence the shape of the postwar treaty. He traveled to Europe at the end of the conflict, armed with Fourteen Points that he believed would prevent future conflicts by establishing clear territorial boundaries, allowing the self-determination of colonial populations, and guaranteeing the rights of neutrals in future conflicts. His proposal also included the concept of a League of Nations, in which conflicting nations could meet to discuss problems before they escalated to war. Wilson's proposals were largely ignored by the

Allies, who sought to impose a harsh, punitive peace on Germany. Ironically, although the League of Nations was created by the Treaty of Versailles, the United States did not join the new organization. The U.S. Senate, dominated by isolationists such as Henry Cabot Lodge refused to ratify the treaty, forcing a separate peace treaty between the United States and Germany, the Treaty of Berlin, signed in 1921.

Throughout the 1920s the United States remained relatively active in world affairs, particularly in the negotiation of international agreements to restrict armaments and limit the likelihood of war. The Washington Naval Conference resulted in three separate treaties. The Four-Power Treaty, signed by Britain, France, Japan, and the United States, maintained the status quo in the Pacific, as each nation agreed to respect the possessions of the others. The Five-Power Treaty, signed by Britain, France, Italy, Japan, and the United States, set limits upon total capital ship tonnage in the fleets of each signatory, and established a new moratorium upon battleship construction for 10 years. The Nine-Power Treaty guaranteed the territorial integrity of nonclaimed portions of China. In 1928 American Secretary of State Frank B. Kellogg proved instrumental in the negotiation of the Kellogg-Briand Pact, an overwhelmingly optimistic treaty eventually signed by 63 nations who agreed to renounce war as a matter of policy. Ironically less than one year later, representatives of more than 50 nations met at Geneva to delineate the international laws of armed conflict, eventually creating 4 conventions to govern acceptable conduct in warfare.

Even though American diplomats remained very active throughout the 1920s, popular sentiment in the United States called for isolation from the international conflicts of Europe and Asia. Many Americans reported disillusionment with the outcome of intervention in World War I, and wished to avoid any similar excursions in the future. As the clouds of war gathered in Europe throughout the 1930s, the United States became increasingly aloof, with the legislature passing a series of Neutrality Acts from 1935 to 1937 to guarantee that the United States would not be drawn into another European conflict. When World War II erupted in 1939, this American desire for isolation hindered President Franklin D. Roosevelt's ability to assist the western Allies in the struggle against Germany. Although the neutrality limits were reduced in 1940 with the creation of a cash-and-carry policy allowing arms sales to belligerents, and further eliminated in 1941 with the passage of the Lend-Lease Act, the United States did not become a belligerent until after the surprise attack by Japanese forces upon the U.S. naval base at Pearl Harbor, Hawaii.

During the war Roosevelt took great pains to cement a very tight alliance with Britain and the Soviet Union. Remembering the disunity that often pervaded the Allies in World War I, he sought guarantees that neither the British nor the Soviets would conclude a separate peace with Germany. In exchange, the United States offered unprecedented amounts of equipment and supplies to the Allies, eventually shipping more than $50 billion in war materials to Allied nations under the Lend-Lease system. During the war Allied leaders met on several occasions to create a unified strategy for the defeat of the Axis powers. Unfortunately these meetings did

not lead to a lasting rapprochement between the United States and the Soviet Union. Within months of the German and Japanese surrenders, a new rivalry between the two nations emerged, commencing the Cold War.

The end of World War II also demonstrated the need for an international diplomatic organization with stronger enforcement capabilities than those possessed by the League of Nations. In 1945 the victors of the war formed the United Nations (UN), an international body dedicated to the pursuit of peaceful solutions to international problems. By the end of the year, new members had drafted a charter and selected New York City for the headquarters of the organization. Less than one year later, the League of Nations formally dissolved itself, transferring operations to the UN. Although the UN has certainly failed to prevent the outbreak of wars, it has provided a priceless forum for the discussion of international concerns.

To maintain the strength of overseas allies, the United States initiated a massive rebuilding program in 1947. The Marshall Plan, named for Secretary of State George Marshall offered more than $13 billion in reconstruction financing to European states devastated by the war. Only the Soviet Union and its satellites in Eastern Europe rejected the aid, a decision which left them out of the massive postwar economic growth that occurred in the decades following the war. This direct aid cemented the military and diplomatic relationships between the United States and Western Europe.

American foreign relations during the Cold War operated under the assumption that the Soviet Union hoped to dominate the world through the propagation of communist ideology. Further it was believed that all adherents of communism would look to the Soviets for leadership and guidance, and would inherently view the United States as an enemy nation. Therefore, beginning with the administration of President Harry S. Truman, the United States pursued a policy of containment, seeking to limit communism to states where it had already taken hold. The American public demanded a return to the prewar lifestyle, with a corresponding demilitarization, thus the American government could not rely upon a massive military establishment to prevent the spread of communism. Instead the focus became upon financial resources and diplomatic overtures. In the aftermath of the war, the United States formed or soon joined three major defensive alliances: the North Atlantic Treaty Organization (NATO), formed in 1949; the Southeast Asia Treaty Organization (SEATO), formed in 1954; and the Central Treaty Organization (CENTO), formed in 1955. By committing to the defense of states surrounding the Soviet Union, American strategists sought to block direct Soviet expansion through military conquest. Although not entirely successful, the organizations did clearly establish which nations the United States would actively defend through military aid and if necessary direct military intervention.

Containment underwent many tests, most notably the Korean War and the Vietnam War. In Korea the North Korean military launched a full-scale invasion of South Korea. This unprovoked attack violated the UN charter, prompting more than 20 member states to eventually offer direct assistance to the South Korean government. UN Resolution 82, which condemned the invasion and authorized

member states to intervene, passed after an extremely short discussion, due in large part to the fact that the Soviet UN representative was boycotting the proceedings. In Vietnam the threat initiated not through an external invasion, but rather through an internal revolt. As such, the UN did not take a side in the conflict, and the American decision to intervene was unilateral. American diplomats pressured allied nations to send additional assistance, eventually securing noteworthy troop commitments from Australia and South Korea.

Throughout the 1960s and 1970s many foreign relations decisions revolved around the Middle East. The proclamation of Israeli independence on May 14, 1948, triggered immediate condemnation from neighboring Arab nations, as well as three major wars in 1948, 1967, and 1973. In each conflict, the United States supported Israel, both through direct financial support and through representation at the UN. This decision angered many of the Middle Eastern nations, leading to decades of disagreement. The Soviet Union provided arms and assistance to Israel's enemies, garnering strong influence in the region.

By the 1980s American-Soviet foreign relations had reached an almost constant tension, with each side spending vast sums of money and national effort upon the creation and maintenance of large military forces. In particular each nation amassed a huge nuclear stockpile capable of obliterating the other in the event of an open conflict. These nuclear arsenals threatened world civilization as a whole, as no nation could truly negotiate a completely neutral position between the superpowers. However, the Soviet economy proved incapable of supporting the massive military expenditures, leading to a sudden internal collapse that by 1991 toppled the communist government. This was accompanied by a withdrawal of Soviet forces from Eastern Europe, where every communist government soon fell. As quickly as it had begun, the Cold War ended, without a single shot being fired between the key antagonists.

In the post-Cold War era, the United States emerged as the only remaining superpower in the world. Ironically this status has been accompanied by a far more interventionist American foreign policy, leading some critics to accuse the United States of acting as the "world's policeman." In the 1990s some international observers predicted that the world would enter a new era of peace. Instead, regional conflicts have sprung up throughout the world, provoking American military interventions in Iraq, Somalia, Bosnia, Kosovo, and other locations that might have remained quiet under the previous bipolar system.

In 2001, after the terrorist attacks of September 11, American foreign policy turned to the confrontation of another ideology, international terrorism. The Global War on Terrorism (GWOT) initially drew dozens of nations together to condemn the use of terror as a tool of military or political influence. However, the inability of the UN to agree upon a definition of terrorism, much less a definitive list of terror organizations, has left the United States to convince allies to offer forces to the invasions of Afghanistan and Iraq on a bilateral basis, rather than as the result of a UN resolution. American attempts to link the government of Iraq with the

terrorist organization Al-Qaeda proved ineffective at the UN, which refused to authorize any military action against Iraq. The United States led a "coalition of the willing" to invade Iraq and depose President Saddam Hussein, a demonstration of disregard for the importance and function of the UN that led to much criticism in the international community. President Barack Obama has vowed to restore the American image in the world, primarily through the use of diplomatic initiatives and a greater emphasis upon negotiations over military intervention.

Paul Springer

See also: Cold War; Global War on Terrorism (GWOT); Korean War; Marshall, George Catlett; North Atlantic Treaty Organization (NATO); Roosevelt, Franklin Delano; Soviet Union (USSR); Truman, Harry S.; Vietnam War; Weapons, Nuclear; World War II

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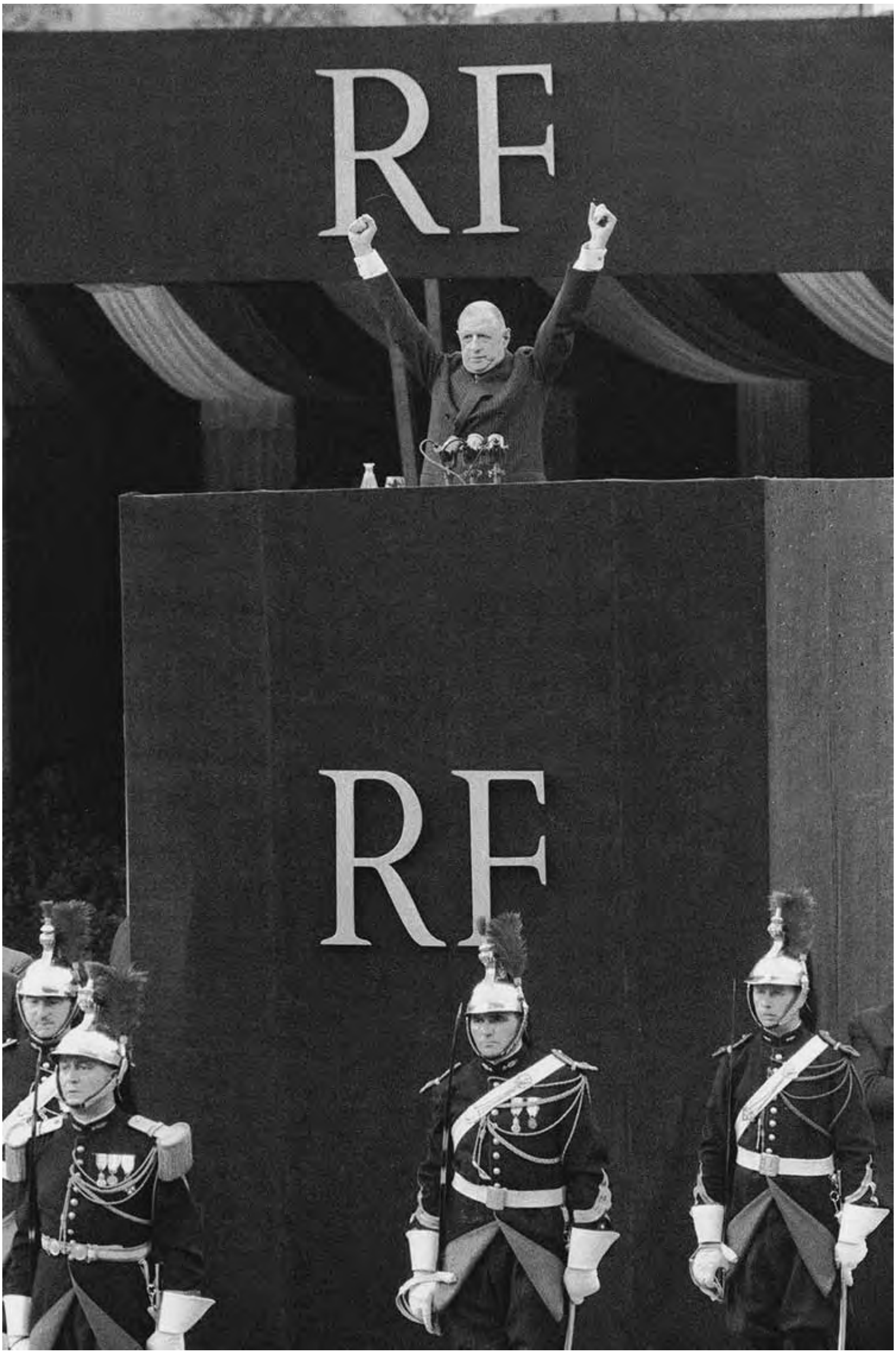
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FRANCE

West European nation covering 211,208 square miles, roughly twice the size of the U.S. state of Nevada and somewhat smaller than Texas, with a 2008 population of 64 million. France is bordered to the west and northwest by the Atlantic Ocean and the English Channel; to the northeast by Belgium, Luxembourg, and Germany; to the east by Switzerland and Italy; and to the south by the Mediterranean Sea and Spain. In June 1940 Germany defeated and occupied France. The collaborationist Vichy regime notwithstanding, the country emerged as one of the victors of the war in 1945. This was mainly because of the resistance movement that was coordinated and conducted by France Libre (Free France), initially established and led from London by General Charles de Gaulle.

In the postwar period, France became one of the pillars of West European cooperation and integration and was an important component of the Atlantic Alliance. From 1958, however, France embarked on a more independent foreign policy. The former French Empire was dismantled through a difficult process of decolonization and in some cases, such as Indochina and Algeria, only after protracted wars. Constitutionally, France passed through the interregnum of the institutionally weak Fourth Republic (1946–1958) to the Fifth Republic (since 1958), created by de Gaulle and disposed to be a far more stable and enduring political system than the one it replaced.

The transition period between the August 1944 liberation of Paris and the establishment of the Fourth Republic



French General Charles de Gaulle flashes the V-sign with his arms as he addresses the crowd gathered 4 September 1958 at the Republic Square in Paris to promote his project of the new constitution, which established the Fifth Republic. (AFP/Getty Images)

was characterized by major structural reforms and a complicated process of constitution making. The reforms were implemented mainly during 1945–1946, among them the nationalization of key sectors of the economy and industry, improvement of the social welfare system, and the introduction of centralized economic planning.

Disagreements over constitutional issues and economic policy led to the breakup of the tenuous coalition of the Left and Center parties, with de Gaulle resigning in January 1946. The biggest conflict resulted from differing constitutional concepts. De Gaulle favored a strong presidency overseeing a powerful central government, while political parties fought for a constitution that gave party politics the dominant role in the political system. The parties prevailed, but three referenda were necessary in order to promulgate a new constitution. On October 21, 1945, an overwhelming majority voted against reinstating the constitution of the Third Republic. In May 1946 the first draft of a new constitution was rejected. Finally on October 13, 1946, a second draft was accepted, with more than 32 percent of the voters abstaining.

The constitution of the Fourth Republic aimed at giving the premier considerable power, but as it turned out the main winners were actually the National Assembly and the political parties. At the beginning of 1947, with the institutions of the Fourth Republic established, the parliament elected the first president, Vincent Auriol, on January 16.

The Fourth Republic produced decidedly mixed results. On the one hand, it laid the foundations for success in both domestic and foreign affairs. Internally, however, it was subject to revolving-door governments that in the long run brought gridlock and instability. The main achievements of the Fourth Republic were related to economic development. Efficient use of foreign aid, especially Marshall Plan assistance, accelerated recovery from the war. The combination of centralized planning, an end to protectionism, and a disciplined focus on investments over consumption all led to impressive growth rates and unprecedented industrial expansion in the 1950s. Although inflation remained a constant concern, the overall economic policies of the Fourth Republic created a solid basis upon which the economic successes of the 1960s were built.

Externally the Fourth Republic's main accomplishments were related to the strategic orientation of its foreign policy, especially concerning West European and Atlantic affairs. From the start of the Cold War, France placed itself firmly in the Western camp, and the representatives of the French Communist Party were ousted from government in May 1947. France enthusiastically supported the Marshall Plan; joined the Organization for European Economic Cooperation (OEEC), established in April 1948 to distribute U.S. aid; and was one of the founding members of the North Atlantic Treaty Organization (NATO), chartered in April 1949. With respect to the Federal Republic of Germany (FRG, West Germany), initial efforts to pursue a harsh occupation policy and detach the Saar gave way to close cooperation, which became a pillar of the West European Integration Movement. Following France's proposed May 1950 Schuman Plan, the European Coal and Steel Community (ECSC) was formally established in April 1951. France played an active role in the preparation

of the Treaty of Rome (25 March 1957), which founded the European Economic Community (EEC) and included the Common Market and the European Atomic Community (EURATOM).

Despite these successes, the Fourth Republic was unable to overcome its institutional deficiencies or cope with the problems created by decolonization. The political system remained highly unstable, thanks to the inherent structural weaknesses of the executive branch. Contrary to the intentions of the constitution, governmental power was severely restrained by a preponderant National Assembly and its many shifting coalitions. The result was a series of governmental crises accompanied by constantly changing cabinets; the average tenure of a government during the Fourth Republic was slightly more than seven months. The deplorable state of political affairs was particularly evident in December 1953, when the National Assembly required 13 ballots before finally electing René Coty president of the Fourth Republic.

These institutional weaknesses affected the French colonial system, and vice versa. France was forced to retreat from Indochina after a bloody, unpopular eight-year war (1946–1954) that culminated in the ignominious defeat at Dien Bien Phu in May 1954. Barely half a year later, in November 1954, Algerian rebels began an armed struggle against their colonial French rulers. Fearing a possible domino effect, France granted Morocco and Tunisia independence in 1956. But the attempt to hold on to Algeria, France's most important North African colony where almost 1 million Frenchmen had settled, proved futile, even with 500,000 ground troops by 1958.

Finally the combination of a new government crisis in Paris in April 1958, riots by French nationalists in Algiers in May, and a rebellion of part of the French Army including high-ranking officers led to the fall of the Fourth Republic. President Coty informed the National Assembly and the Senate on May 29 that because the country was "on the brink of civil war," he had asked de Gaulle to take charge of the formation of a new "government of national salvation."

On June 1, 1958, the National Assembly elected de Gaulle head of a provisional government for six months. Granted immense power, the general initiated the drafting of a new constitution that was adopted by referendum on September 28, 1958. The constitution of the Fifth Republic gave the executive branch—especially the president—much broader powers, mainly at the expense of the National Assembly. The president selected the prime minister and generally played the leading role. The government would continue to be responsible to parliament, but the president had the authority to dissolve the National Assembly. And instead of the National Assembly alone choosing a leader, a college of deputies, senators, and local representatives, comprising more than 80,000 persons, would elect the president for a seven-year term. On December 21, 1958, de Gaulle was elected president of the Fifth Republic by a clear majority of the college.

First and foremost, de Gaulle had to find a way out of the Algerian War. However, neither the Algerian independence movement nor the colonists demanding the defense of French Algeria were willing to accept his initial plans for a compromise, which called for an autonomous Algeria with continuing

special ties to France. Disturbances both in mainland France and in Algeria, and particularly the abortive April 1961 military putsch in Algiers led by General Raoul Salan, accelerated the trajectory of Algerian independence. Other options were gradually eliminated, and on April 8, 1962, the évian Accords of March 18 between the French government and the Provisional Government of the Algerian Republic were approved by an overwhelming majority in a national referendum. However, repercussions of the Algerian conflict continued to affect politics and society in France. The army insurgents in Algiers had formed the Organisation de l'Armée Secrète (OAS, Secret Army Organization), which turned into a purely terrorist force that tried repeatedly to kill de Gaulle and destabilize the government. And the country had to absorb almost 1 million refugees from Algeria.

Despite the preoccupation with Algeria, de Gaulle managed at the same time to lay the most important foundations of a stable Fifth Republic. The new institutions set in place proved as viable as the constitution, which was amended once in October 1962, providing for election of the president by direct universal suffrage. A program of inflation control and austerity measures strengthened the economy and the currency, with a new French Franc being introduced in 1960. Political stability, economic success, and the solution of the colonial conundrum allowed de Gaulle to pursue his ambitious foreign policy plans. These elements also contributed to his victory in the December 1965 presidential elections.

De Gaulle aimed at forging an independent, middle-course foreign policy and strengthening France's role in world affairs. He pushed successfully for the implementation of an independent French nuclear deterrent (Force de Frappe). In February 1960 France tested its first atomic bomb, and in August 1968 it detonated a thermonuclear bomb, thus achieving the basis of an independent nuclear force. Without giving up the global orientation in Atlantic or in European affairs, de Gaulle changed foreign policy priorities and approaches. In March 1966 France withdrew from NATO's integrated military command and gave notice that it was terminating the stationing of U.S. and Canadian forces in the country. But the nation remained a NATO member, and de Gaulle, often perceived in the United States as anti-American, remained a reliable U.S. Cold War ally.

De Gaulle's European policy combined the intensification of West European integration efforts with initiatives for détente and cooperation with Eastern Europe and the Soviet Union. The main pillar of integration remained the EEC, with the ongoing French-German entente as the driving force. With respect to the development of the EEC, de Gaulle favored intergovernmental cooperation and the supremacy of national interests over supranational ones. He also vigorously demanded a Common Market for agricultural products. In addition, he twice blocked the entry of Britain into the EEC, fearing that its membership would undermine established West European positions.

In the spring of 1968 a serious rebellion against the French political and social order erupted, beginning with student protests and followed by massive labor strikes. The crisis came to a head in the last week of May 1968 and resulted in bloody confrontations between police

and protesters. The political leadership, caught by surprise by the Events of May, vacillated for some time. Obvious differences emerged between President de Gaulle and Premier Georges Pompidou. Although the government restored order by June 1968, de Gaulle never fully regained his former authority. On April 27, 1969, his proposals for constitutional amendments of minor importance were rejected in a referendum. Having publicly announced the issue as a referendum on his leadership, de Gaulle resigned the following day.

The continued development of France after de Gaulle's departure confirmed the long-term efficacy of his political and institutional leadership. The Fifth Republic, attacked as tailor-made for its creator by many of its critics, nonetheless remained intact. It also proved quite amenable to the change in leadership.

De Gaulle's first two successors had served in government during the 1960s. Pompidou, prime minister during 1962 to 1968, was elected president on June 15, 1969. Following his death in April 1974, former finance minister Valéry Giscard d'éstaing became president, having defeated socialist François Mitterrand in a close second ballot in May 1974. Pompidou was inclined toward a more liberal leadership style and to a less state-oriented economic policy than his predecessor, but in general terms he adhered to Gaullism. During the premiership of Jacques Chaban-Delmas (1969–1972), important social reforms were introduced under the banner of the "new society." Pompidou's most important foreign policy change was the lifting of the veto against Britain's entry into the EEC. His proposal was approved by referendum in April 1972.

Giscard distanced himself more clearly from the Gaullist tradition, announcing the establishment of an "advanced liberal society" that first and foremost was meant to implement radical economic reform based on the classical principles of a free-market economy. But the consequences of the world economic crisis of the mid-1970s restrained further reforms, and France entered the late 1970s in a prolonged economic crisis with sinking industrial production, rising unemployment, and rampant inflation. Giscard's main achievements in foreign policy were his initiative for meetings among representatives of the most industrialized countries (G7) and the establishment of the European Monetary System.

During the 1970s the formerly amorphous and atomized political party system became more stable and coherent because of the coalescence of five organizations. The Communist Party continued to represent the traditional far Left, albeit with declining influence. The Socialist Party was revitalized by its merger with several small groups in 1971 and restructured under the leadership of Mitterrand. The Center-Right was divided mainly between the Union pour la Democratie Française (UDF, Union for the French Democracy) and Gaullism's Rassemblement pour la République (RPR, Rally for the Republic), which was nearer to the political philosophy of de Gaulle and was founded in December 1976 by Jacques Chirac. During the 1980s a new party emerged on the far Right, the nationalistic and xenophobic Front National (National Front) led by Jean-Marie Le Pen.

Thanks to a quasi coalition of the Left and severe friction between Giscard and Chirac, Mitterrand defeated Giscard in the second round of presidential elec-

tions in May 1981. For the first time in the history of the Fifth Republic, the Left came to power. The new government formed by Prime Minister Pierre Mauroy included four ministers from the Communist Party and began with an ambitious program of social reforms and economic nationalization. But a deteriorating economic situation soon forced Mitterrand to adopt a radical change. He turned to a program of austerity measures and in July 1984 replaced Mauroy with Laurent Fabius. The Communist Party ministers left the government following these actions.

Internally, defense policy has changed over the course of the Cold War. Whereas France was a recipient of major U.S. military equipment during and immediately after World War II, it built its own version of a Military-Industrial Complex during the Cold War. No longer interested in accepting handouts from the United States, France embarked on an autonomous defense procurement system. During the war French troops liberated France with American assistance and equipment; after the war French nationalism was reborn. French industry took over for American assistance in aviation, sea, and land-based weapons systems, and even a nascent nuclear industry. In the intervening years, the French built up indigenous defense sectors and even became a major hardware exporter. Planes made by Dassault were flown by the Israelis in the 1967 war; the French *Exocet* antiship missile was fired at British Royal Navy ships (from French built aircraft) in the 1982 Falklands (Malvinas) War. France also exports peaceful nuclear technology—frequently to controversial places like Iran and Iraq, and today is considering construction of additional aircraft carriers and nuclear submarines for the *Marine Nationale* (French Navy).

Institutionally, no major developments emerged after 1981 except for one: the so-called cohabitation. The authors of the constitution obviously had not foreseen the possibility that the president and the government could belong to different parts of the political spectrum. This happened for the first time in 1986, when the RPR and UDF won a clear parliamentary majority, forcing Mitterrand to appoint Chirac as prime minister. This first cohabitation lasted until 1988, and in the 1990s two similar situations followed. Nevertheless, the functioning of the Fifth Republic was not substantially altered by this new phenomenon.

In foreign affairs, continuity was even more evident in the 1980s. By and large, Mitterrand stuck to the main principles of Gaullist foreign policy: defending the independence and national interests of the country but remaining a reliable member of the Atlantic Alliance, concentrating on the Franco-German entente as the main pillar of West European policy, and enhancing détente but firmly supporting the United States in crisis situations. Together with German Chancellor Helmut Kohl, Mitterrand was instrumental in paving the way for the 1991 Maastricht Treaty leading to the European Union (EU).

During the Cold War, France remained one of the pillars of the Western alliance and a driving force behind West European cooperation. De Gaulle pursued an independent course in foreign policy, leading at times to sharp differences with the United States, but this was designed to enhance the position of France and Western Europe and did not represent a repudiation of basic

Western interests vis-à-vis the Soviet Union.

Magarditsch Hatschikjan

See also: Germany, Federal Republic of (FRG, West Germany); North Atlantic Treaty Organization (NATO); Soviet Union (USSR); Vietnam War; World War II

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GENERAL DYNAMICS

The General Dynamics Corporation is the fifth largest U.S. defense contractor. Its major products are nuclear submarines, armored vehicles, and space launch systems.

The origins of General Dynamics are in the Electric Boat Company, a New Jersey ship and submarine builder founded in 1899. Electric Boat thrived during World War II, when it sold large numbers of submarines and patrol boats. After the war the company bought Canadair, a Canadian aircraft builder, and in 1952 company chief John Jay Hopkins founded General Dynamics. In the following years the company made the first nuclear submarines and bought another company, Consolidated Vultee Aircraft (Convair), which produced commercial airliners. In 1959 it merged with a Chicago-based building materials company, Material Service Corporation. In the 1970s it sold Canadair and became involved in building tanks when it bought Chrysler Defense. General Dynamics bought Cessna Aircraft in 1986 but sold it six years later. It sold its missile systems unit to Hughes Aircraft later that year, and in late 1992 sold its tactical military aircraft business to Lockheed.

General Dynamics' space launch systems division produces the Atlas and Centaur launch vehicles and makes boosters for the National Aeronautics and Space Administration (NASA), the Defense Department, and commercial customers. The electric boat division designs and builds nuclear submarines, including the Trident and the Seawolf classes. It also overhauls and repairs nuclear and other submarines, in addition to providing other services. The armored vehicle division makes tanks, including the M-1 battle tank. It sells to the U.S. Army, the U.S. Marine Corps, and foreign countries. In addition to several wholly owned subsidiaries bearing the name General Dynamics, the corporation owns Freeman United Mining Company, Material Service Corporation, Marblehead Lime Company, and the American Overseas Marine Corporation, which makes military supply ships. General Dynamics ended 1996 with an $8 billion defense order backlog.



The industrial powerhouse General Dynamics produces a number of platforms for the U.S. military including submarines like the USS *Seawolf* (1955). (Courtesy of Art-Tech)

General Dynamics' net sales reached $19.2 billion in 2004, with net earnings amounting to $609 million.

S. Mike Pavelec

See also: Arms Manufacturers/Defense Industry Contractors; Weapons, Air; Weapons, Space; United States Air Force

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GERMAN DEMOCRATIC REPUBLIC (GDR, EAST GERMANY) (1949–1991)

East Germany was officially created on October 7, 1949, as a direct result of the Cold War. Unable to arrive at a postwar settlement with Great Britain, France, and the United States regarding Germany, the Soviet Union allowed its zone of occupation to become a sovereign state. East Germany's population in 1950 was 18.4 million people.

At the February 1945 Yalta Conference, the Allies had agreed to jointly occupy Germany pending the final resolution of a peace treaty. Germany and Berlin, its capital, were divided into four zones to be administered by the four victorious powers. Although the occupied territories were to be treated as a single economic unit, disputes over the disposition of resources surfaced almost immediately. The future of Germany became an immediate subject of debate, with the Soviet Union pressing for the formation of a communist Germany.

The first steps in this direction were taken even before the war ended. Wal-



An East German Worker, under the watchful eyes of Communist police, erects a high concrete wall at a sector border near Potzdamer Platz in Berlin on August 18. 1961. (UPI-Bettmann/Corbis)

ter Ulbricht, a German communist who had spent the war years in the Soviet Union training for this eventuality, led a group of exiles back to Germany with the Red Army. With Soviet support they placed sympathizers in key posts in the new, superficially democratic administration of the occupied territory. The communists' record of resisting the Nazis allowed them to outmaneuver other political parties permitted in the Soviet zone. The German Social Democratic Party (SPD), however, remained a challenge. Backed by the Soviet military authorities, Ulbricht engineered the merger of the eastern branches of the SPD with the German Communist Party (KPD) in April 1946. The resulting Socialist Unity Party (SED) was under communist control by 1948.

Even though Soviet military authorities allowed the so-called Bloc Parties (the Christian Democratic Union, the Liberal Democratic Party, the Democratic Farmers' Party, and the National Democratic Party) to operate in their zone, the SED had an effective monopoly on power. The mass organizations that were given a place in the new political system (the Free German Trade Unions, the Free German Youth, the German Women's League, and the Cultural League) were also under the SED's firm control. The German communists, with the aid and support of the Soviets, had thus laid the foundations for a single-party state by the time the disputes between the Western powers and the Soviets came to a head in April 1948 in the form of the Berlin Blockade.

The blockade itself was the result of a series of disagreements over the administration of Berlin as well as over the future development of Germany. Both sides used the process of granting incrementally greater authority to Germans and German institutions as leverage in negotiations. The end result was the 1949 creation of two separate German states, the Federal Republic of Germany (FRG, West Germany) and East Germany.

The Western Allies did not immediately recognize the East German state. The West German state, they contended, was not intended as a permanent solution to the German question. By and large, the Western Allies and the new West German government viewed the division of Germany as the result of deliberate Soviet policy and continued to claim the

right to represent all Germans. The Soviets, on the other hand, appeared to consider the question closed. They granted East Germany immediate recognition as a sovereign, constitutional state, whereas West Germany was deemed a self-governing Allied Protectorate.

Despite the appointment of Wilhelm Pieck as East Germany's first president, Ulbricht remained the driving force in the government's development. His policies were slavishly Stalinist. Under the slogan of "constructing socialism," he purged the SED, established the infamous Ministry for State Security (Stasi), and introduced a Marxist-Leninist curriculum in the schools. State investment focused on creating heavy industry at the expense of consumer goods, while collectivization was the goal in agriculture. In addition, the East German government continued to make reparations payments to the Soviet Union in the form of goods and capital stock. Poor economic conditions combined with an increasingly totalitarian political structure caused many East Germans to flee the country. The East German government closed its border with the West in May 1952, but the exodus continued as Berlin remained an open city. On average, more than 175,000 people per year left East Germany for West Germany between 1949 and 1953.

Open rebellion against the SED regime, however, did not coalesce until June 1953. The failure of the government to rescind an increase in the expected levels of production—in line with Soviet policy since the death of Josef Stalin in March 1953—spurred mass strikes in Berlin. Demonstrations in the capital on June 16, 1953, spread to the rest of the country the following day until the Soviet Army sent tanks to quell the disturbances. Ironically the uprising strengthened Ulbricht's position, as the Soviets were now clearly committed to supporting his regime.

Ulbricht nonetheless instituted limited reforms aimed at placating East Germans. The SED dropped its Five-Year Plan and adopted a more balanced Seven-Year model, collectivization was temporarily abandoned, and the centralized economy shifted its focus to providing more housing and basic consumer goods. Without fundamental reforms, however, the East German economy continued to lag far behind that of West Germany. Ulbricht's solution to this slow growth was to increase the tempo of socialization in the late 1950s, resuming collectivization and pressing business owners into cooperatives. The regime also stepped up its communist indoctrination efforts. East German youths were pressed to join the police and armed forces (East Germany had become part of the Warsaw Treaty Organization in 1955) to demonstrate their commitment to socialism. In the meantime the flow of refugees moving through Berlin from East to West accelerated.

The solution to this problem, proposed by Ulbricht and approved by Soviet leader Nikita Khrushchev, was to close the border in Berlin as well. On the night of August 12 and 13, 1961, East German police units began constructing the Berlin Wall. Labeled an antifascist bulwark by the SED regime, the wall's construction was seen in the West as an admission of defeat. It served its purpose, however. Not only did it stop the drain of talent and manpower, but it also allowed the East German government room to experiment with reforms.

On the very night that the Berlin Wall went up, Ulbricht initiated a program of de-Stalinization, changing the names of streets, squares, buildings, and factories. By 1963 the regime was comfortable enough to announce the New Economic System (NES). Aimed at improving productivity and making management more responsible, the NES was a limited market-oriented system that brought a short-term surge in growth. In the long run, however, the SED was unwilling to surrender enough control over the economy to make the system work. The NES was abandoned in 1970.

Curiously, in 1968 the SED had promulgated a new constitution that not only cemented the party's leading role in politics but also declared East Germany a socialist state, bringing the construction phase to a close. East Germany, however, could hardly be considered successful. The economy was stagnant, and East Germans continued to seek refuge in the West whenever they could. Pressure from the West, in the form of the Hallstein Doctrine, left the state isolated beyond the Soviet bloc.

Ulbricht, aging and increasingly out of touch, was quietly pushed aside in favor of Erich Honecker, formerly head of the communist youth organizations, in 1971. In Cold War terms, West German politics had shifted decisively as well, as the SPD came to power in 1969. As part of an initiative known as Ostpolitik, Willy Brandt, the new chancellor of West Germany, favored opening relations with East Germany. Honecker spoke of "no taboos," indicating a willingness to open East German society and culture, if not East German politics and the Berlin Wall.

The increased flexibility on both sides paid handsome dividends. Brandt opened his initiative with a visit to East Germany in May 1970 to discuss intra-German relations. Progress was limited, however, as Ulbricht insisted on linking other issues to the question of West Berlin's status. Under Honecker, representatives of West Germany and East Germany managed to work out new agreements on transit and tourism (part of the four-power Berlin accord of 1971) relatively quickly. On November 8, 1972, after only six months of negotiations, the two states concluded a Basic Treaty that established relatively normal relations between them. While the two Germanies stopped short of full-scale recognition, the Basic Treaty acknowledged the reality of two states.

This was a major triumph for East Germany, as its diplomatic isolation came to an end. Trade with the West grew substantially, and increasing visits from West Germans provided a steady source of hard currency. To a considerable degree the West underwrote the refurbishment of the East German infrastructure. This allowed Honecker to implement social programs on a grand scale. Between 1971 and 1980 the regime built more than a million new housing units and renovated half a million more. Economic policy centered on the provision of consumer goods, and the East German standard of living, although still lower than West Germany's, was the highest in the Soviet bloc.

Under Honecker, moreover, the SED regime scaled back indoctrination campaigns, accepting public conformity as being sufficient. Most East Germans went along with the bargain, supporting—or at least not opposing—the SED in public and otherwise retreating into their private lives. Those who continued to criticize the regime openly, such as Wolf Biermann

and Vera Wollenberger, usually found themselves "exiled" to the West. The Stasi established an extensive network of spies and informants that effectively quashed any nonconformist movements before they could start.

Honecker's no-taboos state thus evolved into a stagnant society—a "niche society" as Günter Gaus famously termed it—in which stability and outward conformity were most important. The politics of the East German state were nonetheless hollow. Although the SED professed confidence in its support from the population, it consistently refused to allow citizens below retirement age to travel to the West. Supported financially by West Germany and politically by the Soviet Union, however, East Germany played an increasingly important role in Cold War and international politics. In the early 1980s the Soviet Union and the United States came to loggerheads over the deployment of nuclear missiles on German territory. Although Honecker accepted the missiles, he acted as a moderating force in the standoff. He insisted that gains in West German–East German relations would lead to a solution favorable to the Soviets and that the entente therefore needed to be preserved.

The Soviets effectively turned the tables under Soviet President Mikhail Gorbachev. When Honecker steadfastly refused to go along with Gorbachev's radical program for reforming socialism internally (*perestroika*), the Soviet leader made it clear that support for East Germany would be limited. This along with Honecker's continuing liberalization of intra-German relations—allowing independent political demonstrations in 1987, for example, or televising debates between East and West German politicians—ultimately led to the collapse of the East German state.

When the Hungarian government removed the fortifications along its border with Austria in May 1989, more than 30,000 East Germans fled along this route in just six months. Honecker refused to acknowledge the mass exodus, and during a visit to East Germany on October 7, 1989, Gorbachev made it clear that the Soviet Union would not intervene as it had in 1953. Two days later demonstrations against the SED regime began in Leipzig.

Reformers within the SED, led by Egon Krenz, seized the opportunity to oust Honecker at the party plenum on October 18, 1989. On November 9 they announced that citizens of East Germany would be allowed to travel freely. Within days millions of East Germans had broken through the Berlin Wall, literally in many cases, to visit West Germany. Further attempts at reform by the Krenz government paled against the economic lure of the West, however. On March 18, 1990, East Germans voted overwhelmingly for unity with West Germany. State treaties for the economic (July 1, 1990) and political (October 3, 1990) union of the two Germanies soon followed. The German Democratic Republic, one of the central players in the Cold War in Europe, had ceased to exist.

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See also: Cold War; Germany, Federal Republic of (FRG, West Germany); Soviet Union (USSR); Weapons, Nuclear

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GERMANY, FEDERAL REPUBLIC OF (FRG, WEST GERMANY)

Central European nation that during the Cold War covered 96,019 square miles, about the size of the U.S. state of Oregon. With a 1948 population of 50 million people, the West Germany bordered the German Democratic Republic (GDR, East Germany) and Czechoslovakia to the east; Austria and Switzerland to the south; France, Luxembourg, Belgium, and the Netherlands to the west; and the North Sea to the north. The Allies created West Germany because of increasing Cold War tensions in the late 1940s.

At Yalta in 1945, Britain, the United States, and the Soviet Union (USSR) agreed to temporarily divide and occupy Germany until a final settlement could be reached. The British, Americans, and Soviets augmented this understanding at the Potsdam Conference (July 17–August 2, 1945) with a stipulation that Germany be treated as a single economic unit during the occupation.

Economics—specifically the issue of war reparations—drove a wedge between the Soviets and the Western powers even before Potsdam. The British and Americans believed that Soviet occupation was exploitative at the expense not only of the Germans but also of the other occupying powers as well. Because of this the Americans suspended reparations deliveries to the Soviet zone in May 1946. Deliveries soon resumed, but when the Paris Conference of Foreign Ministers deadlocked over the same issue, U.S. Secretary of State James F. Byrnes approached the British and French about merging their zones into a single economic and administrative unit. The British accepted the offer in July 1946, and Byrnes announced the new policy during a speech in Stuttgart in September 1946. The two zones officially merged into Bizonia on January 1, 1947.

The administration of Bizonia effectively provided for a separate state in all but name. The occupying powers created an Economic Council of 52 deputies to take care of day-to-day affairs and added the Landrat (Council of States) to deal with legislative matters. They also established the Executive Committee that did the work of a cabinet, although the ultimate power still lay with the Allied military governments.

Differences over economic policy, while inextricably linked to political issues, remained the leading edge of the divide between the Soviets and the West. The announcement of the U.S.-sponsored Marshall Plan in June 1947 proved a decisive turning point. The offer of aid was open to the Soviets and their client states, but all recipients had to agree to a program of reconstruction that had clear political overtones. The USSR therefore rejected the offer.

The London Conference of Foreign Ministers held in December 1947 not

only failed to heal the breach but also essentially sealed the division of Germany. Soviet Foreign Minister Vyacheslav Molotov demanded assurances that the Western powers were not going to form a separate state; U.S. Secretary of State George Marshall replied that they had already decided to take steps toward unification rather than continue to argue. In February 1948 British Foreign Minister Ernest Bevin accordingly convened a six-power conference, which included Belgium, Luxembourg, and the Netherlands, to discuss the creation of a western German state. To that end the French agreed to join Bizonia. To protest, in March 1948 the Soviets withdrew from the Allied Control Council charged with the administration of occupied Germany. They also temporarily halted military trains moving between the Western zones and Berlin.

When a second six-power meeting laid out concrete principles for the new western German state in June 1948 and then proceeded to initiate currency reform in their zones, however, the Soviets revived the blockade. When the British and Americans responded by airlifting supplies to the city and counter-blockading the Soviet zone, the communist leadership of eastern Germany attempted to claim authority over all of Berlin. They succeeded only in forcing the city administration to seek refuge in the Western zones of the city. The year-long stalemate, however, convinced both sides that political division was the only solution.

The Western military governors formally proposed terms for a western German state in July 1, 1948. After much wrangling, the minister-presidents of the western German states accepted, although they insisted on crafting a Basic Law rather than a constitution so as not to preclude future unification.

The final draft of the Basic Law approved by the minister-presidents in February 1949 contained several important clauses. First, it set a threshold of 5 percent of the vote for a party to be admitted to representation in the new parliament. Second, it required any vote of no-confidence in a government to be accompanied by the simultaneous election of a new one. Third, it set strict limits on the powers of the head of state, although it stopped short of reducing the office to purely ceremonial status. Finally, in Article 23 it specifically provided for other German states to join at a later time. In discussions held during April 1949, the Western foreign ministers agreed to accept the German draft, although the Allies retained the right to veto any legislation that conflicted with occupation policy and to resume full authority in case of emergency. The Basic Law was accordingly ratified by the three Western military governors, the German Parliamentary Council, and nine of the German states in early May 1949. The Basic Law came into force on May 23, 1949, officially establishing West Germany.

The first West German elections were held in August 1949, with Konrad Adenauer's Christian Democratic Union (CDU) gaining 31 percent of the votes against 29 percent for the Social Democratic Party (SPD). The German Communist Party (KPD) won only 5.7 percent of the vote, while the Free Democratic Party (FDP) took 11.9 percent. On September 15, 1949, the new parliament (Bundestag) elected Adenauer chancellor by a single vote—his own. Six days later the new, simpler

occupation statute entered into force, and West Germany officially became an independent state, albeit with limited sovereignty.

Adenauer and the CDU dominated the first 15 years of West Germany's existence. Their program was essentially conservative but turned on two crucial points. The first was the acceptance of the social-market economy, a mix of socialism and capitalism crafted by Ludwig Erhard, who had been minister of economics in Bizonia. The second was anticommunism, or anti-Sovietism. While the SPD, led by Kurt Schumacher, had campaigned for nationalization of industry and a socialist, centralized economy and believed that unification was the overriding goal, the CDU portrayed itself as the only reasonable bulwark against Soviet domination and was willing to sacrifice unity in the short term. Adenauer's first goal was to reestablish Germany as a reliable, democratic partner in West European affairs. Only then, Adenauer felt, could Germany take steps to regain true independence and eventually unity.

Crafty politics and favorable circumstance helped Adenauer achieve his first goal with amazing speed. In November 1949 West Germany signed the Petersberg Agreement, entrusting control of the production and distribution of coal and steel in the Ruhr Valley to an international authority in exchange for a more rapid end to the Allied dismantling program. This led to German membership (along with France, Italy, Belgium, Luxembourg, and the Netherlands) in the European Coal and Steel Community (ECSC), formed in April 1951, and one of the cornerstones of the European Economic Community (EEC) created six years later.

Attempts to integrate West Germany into a joint European army had already begun in 1950, when the outbreak of the Korean War caused concerns about low troop levels in Western Europe. Popular sentiment in West Germany was overwhelmingly against rearmament, but Adenauer cleverly tied the issue to German sovereignty. While telling his countrymen that rearmament was a safeguard against Soviet dominance and a step toward true independence, he also pointed out to the Allies that an occupied Germany would continue to be a drain on their resources.

This arrangement was formalized in May 1952 when Britain, France, the United States, and West Germany signed the so-called Germany Treaty. This brought an end to the occupation statute in return for a firm German commitment to political, economic, and military alliance with the West. When negotiations on the proposed European Defense Community (EDC) collapsed in August 1954, the Allies invited West Germany to join the North Atlantic Treaty Organization (NATO) when it absorbed the Western European Union (WEU) in October 1954. On May 5, 1955, four days before it officially joined NATO, West Germany gained full sovereignty.

Adenauer was equally successful in domestic politics. While the Marshall Plan had jump-started the economy of western Germany already in 1948, the newborn West Germany still faced a number of daunting economic and social problems in 1949. Unemployment, exacerbated by the presence of nearly 10 million displaced persons in West Germany, hovered around 6 percent. Housing was in short supply, and the shadow of national socialism still hung over a large portion of German society.

The Marshall Plan continued to provide capital, and when the Korean War brought a rapid upturn in German exports in 1950 and 1951, Erhard's social-market economy did the rest. During 1950 to 1957, the gross domestic product (GDP) of West Germany grew at an average rate of more than 8 percent. By 1960 unemployment was under 1 percent.

This economic miracle made social integration easier, enabling Adenauer's regime to successfully enact the Works Constitution Law of 1952 as well as the crucial Equalization of Burdens Act of 1953. The former legislation extended the influence of workers' consultative councils in industry and created a framework for relatively smooth labor relations. The Equalization of Burdens Act taxed capital gains at a rate of 50 percent and redistributed the proceeds to the dispossessed and less fortunate over 30 years. In addition, under the Construction Act of 1950, the federal government provided grants to cities for large-scale housing projects that produced some 4 million dwelling units by 1957.

Less visibly but of equal import, West Germany undertook to pay the sizable foreign debts of the National Socialist regime and to pay compensation and make restitution to the victims of Nazi persecution. While this was in part driven by West Germany's claim to be the sole legitimate successor of the historic German state—a claim embedded in West German foreign policy in the 1950s and 1960s as the Hallstein Doctrine—Adenauer also had personal and moral reasons for the initiative. Under his direction the West German regime agreed to deliver over DM3 billion in goods to Israel over a period of 12 years. Federal indemnification laws provided for roughly DM2 billion per year (through 2005) in payments to individual victims.

Running on this record and with a slogan of "No Experiments," Adenauer and his CDU-FDP coalition easily won reelection in 1957, gaining an absolute majority with 50.2 percent of the vote. This proved to be the apex of Adenauer's achievement, however. The West German economy suffered a slight recession in 1958, and when it recovered in 1960 growth managed only a slower though still significant rate of around 4 percent. Yugoslavia's recognition of East Germany challenged the Hallstein Doctrine and forced West Germany to sever relations with Josip Broz Tito's regime. More important, a prolonged crisis over the status of West Berlin revealed that Adenauer's mastery of Cold War politics was slipping while his rivals in the SPD moved to make themselves more electable.

Encouraged by the success of *Sputnik,* the first satellite launched in October 1957, and by advances in intercontinental ballistic missiles (ICBMs), Soviet leader Nikita S. Khrushchev pressed the Allies for a resolution of Berlin's status. On November 27, 1957, he sent a note to the Allies demanding a peace treaty with the two German states within six months and threatened to turn control of the access routes to Berlin over to East Germany if they did not comply. Adenauer called for a firm response, but the British and Americans appeared more willing to either negotiate or accept the consequences of Khrushchev's threat. Only France, led by Charles de Gaulle, fully supported Adenauer.

The Allies did, in December 1958, reject the Soviet demands, yet they also

continued to negotiate. Behind the scenes Adenauer even explored the possibility of accepting a divided Germany as permanent in return for the neutralization of the eastern state—an action that he believed his countrymen would condemn if they knew about it. Once President John F. Kennedy replaced Dwight Eisenhower in 1961, however, Adenauer and West Germany became increasingly marginalized in the negotiations. When the East German government began to construct a wall cutting off West Berlin in August 1961, Adenauer did not even visit the city late in the month. In his absence the city's mayor, the charismatic SPD leader Willy Brandt, rose to national prominence.

Brandt's run at the chancellorship in 1961, however, met with failure. The CDU retained 46 percent of the vote and renewed its coalition with the FDP, but Adenauer's position was severely weakened. It collapsed altogether in November 1962 under the pressure of the so-called Spiegel Affair. The FDP leadership demanded that Adenauer retire if the coalition was to continue. He reluctantly agreed and, after officially recognizing Erhard as his successor, resigned in October 1963.

In his first policy statement, Erhard declared that the postwar period was over for West Germany. This turned out to be a prophetic statement, although not in the ways that Erhard intended. His government lasted only two years, collapsing under the pressure of increasing economic problems in October 1965. Erhard was forced out as leader of the CDU in favor of Kurt-Georg Kiesinger, who then formed a governing coalition that included the SPD for the first time.

The Grand Coalition ushered in an era of controversy. For one thing, Kiesinger had been a member of the National Socialist Party. His position as chancellor brought to the fore once again debates about the Third Reich, which had been largely ignored in the 1950s, as did the 1963 to 1965 Frankfurt trial of 16 former Auschwitz guards.

The Spiegel Affair had also spurred political activism and public debate about the nature of West German government. Prominent academics such as Jürgen Habermas and Theodor Adorno attacked the regime from a Marxist perspective, and some even equated the "Americanized" West Germany with the Third Reich as a state dominated by inhuman capital interests. With no parliamentary opposition to speak of, students took to the streets to voice their discontent, and a broad spectrum of grassroots social movements sprang up in the late 1960s.

This shift to the Left of the political spectrum, along with the successful management of the West German economy during 1966 to 1969, created the conditions under which Brandt was finally able to lead the SPD to power in October 1969. He was elected chancellor by a margin of only two votes, and the SPD had to govern in coalition with the FDP. Brandt nevertheless embarked on a bold, innovative program in both domestic and foreign policy.

Internally, Brandt's regime oversaw the expansion of the welfare state, reformed pensions and health insurance, liberalized divorce and abortion, updated the criminal code, and relaxed laws on censorship and against homosexuality. By taking advantage of a collapse in the value of the dollar and the end of fixed exchange rates, the SPD was able to curb inflation at the same time. The most important piece of legislation in this

regard was the Stabilization Law of June 1967 that allowed the government to significantly increase credit, alter corporate and income taxes, and build reserves for investment if needed in the management of the economic cycle.

It was in foreign affairs, however, that Brandt truly left his mark. As the United States and the Soviet Union opened the Strategic Arms Limitations Talks in November 1969 and entered into a period of détente, Brandt decided to try to improve intra-German relations in similar fashion. The aims and outlines of this policy, known as Ostpolitik, were readily apparent in his government declaration of October 28, 1969: the West German government would sign the Nuclear Non-Proliferation Treaty (NPT), would enter talks on the renunciation of force, and most importantly would recognize that two German states existed on German soil. Brandt did not offer full recognition to East Germany or surrender the ultimate goal of German unity.

Both the Soviets and the East Germans proved receptive to Brandt's overture. In March 1970 Brandt traveled to the East German city of Erfurt to meet with East German leaders; they reciprocated by visiting Brandt in Kassel, West Germany, in May. Although congenial, the visits proved fruitless in the short term. In the long run, however, they marked the opening of talks that produced a series of treaties normalizing relations between the two German states in matters of trade and transit. On November 8, 1972, the two German states signed the Basic Treaty, which enshrined these arrangements as well as agreements on the status of West Berlin.

Ostpolitik was not universally popular in West German political circles. Many people believed that Brandt had gone too far and had given up on German unity. Similarly, his gesture of apology during a visit to Warsaw—dropping to his knees before the grave of a victim of the ghetto there—proved too much for some members of parliament. Defections from the FDP and the SPD over these issues led Brandt to arrange new elections for November 1972.

The SPD emerged from the campaign with even greater strength, having gained some 3 million votes. Brandt, however, appeared spent. When faced with a mixture of high unemployment and strong inflation in late 1973, his government proved incapable. When his personal assistant was exposed as an East German spy the following spring, the once-dynamic chancellor stepped down.

Brandt's replacement, Helmut Schmidt, was an abrasive but decisive, pragmatic, and able politician. Whereas Brandt had played to the young and to the left wing of the SPD, Schmidt was more conservative. To end the economic slide, he pursued a cautious policy of moderate expenditure cuts and reductions in tax concessions and took measures to restabilize the exchange rate. Along with French President Valéry Giscard d'Éstaing, Schmidt took a leading role in creating the European Monetary System, and he was a strong supporter of the International Monetary Fund (IMF) and the World Bank.

Schmidt and West Germany also assumed a central role in international relations once again during the late 1970s. Steering a careful course between West German defense commitments and a strong domestic peace movement, in 1979 Schmidt convinced NATO leaders to adopt a flexible two-track approach to countermeasures, for instance. Such

conservative policies increasingly alienated the Left and even the Center portions of the SPD, however, and gradually weakened Schmidt's base. Many SPD voters defected to the new Green Party, created in 1980 as an umbrella organization for citizens with environmental concerns. At the same time, conservatives and Schmidt's allies increasingly came to view Ostpolitik as acquiescence in Soviet foreign policy, particularly when Schmidt failed to condemn both the Soviet invasion of Afghanistan in 1979 and the imposition of martial law in Poland in 1981.

By the summer of 1982 it was clear that the FDP preferred to work with the CDU. On October 1, 1982, the leader of the CDU, Helmut Kohl, engineered a vote of no-confidence that deposed Schmidt and placed Kohl at the head of the new coalition. The CDU-FDP regime took some small steps to return to the social-market economy, cutting taxes and reducing government spending along with economic intervention. Kohl's platform was not much different from that of Schmidt's in many regards, however. The inclusion of the FDP in the ruling coalition ensured that Ostpolitik remained a central if somewhat weakened plank. Kohl also pressed NATO to implement the two-track system for intermediate-range missile deployment and maintained strong European relations.

Kohl's legacy, however, was German unification. His government's implementation of Ostpolitik differed from that of the SPD regimes in insisting on unity as a goal along with self-determination and human rights. The West German government nevertheless provided East Germany with nearly DM2 billion in loans in 1983 and 1984 and extended a further DM7 billion in credits through 1989. While these sums were intended to stabilize East Germany and prevent a catastrophe along the lines of the Prague Spring, they in fact did a great deal to bring about the collapse of the East German state.

The crisis that brought a close to the era of a divided Germany caught Kohl and most Germans by surprise. Politicians on both sides of the Berlin Wall envisioned a gradual confederation of the two states, a vision that Kohl spelled out in his Ten-Point Program in November 1989. Public opinion drove the program further and faster. By the end of April 1990, Kohl and his eastern counterparts had agreed on a political and economic union. The Two-Plus-Four Treaty (the two German states plus France, Britain, the United States, and the USSR) that formalized the arrangement and gave it the sanction of the Allies of 1944 was signed in Moscow on September 12, 1990.

Since then, most of the outward signs of division and the Cold War have been eradicated. The Berlin Wall has been dismantled, and the seat of government has been returned to Berlin. The districts of the former East Germany have been fully integrated into a Federal Republic of Germany that now consists of sixteen states, and a single German state has become a central part of an increasingly united Europe. Unification has proven to be immensely expensive and socially challenging, but by the early years of the twenty-first century, Germany has shown that it was indeed up to the test.

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See also: Cold War; France; German Democratic Republic (GDR, East Germany); Kennedy,

John Fitzgerald; Korean War; North Atlantic Treaty Organization (NATO); Soviet Union (USSR); Weapons, Nuclear

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GLOBAL WAR ON TERRORISM (GWOT)

The "Global War on Terrorism" (GWOT) is the term broadly applied to American and allied military operations in the aftermath of the September 11, 2001, attacks. The term was first formally used in an address by President George W. Bush to a joint session of Congress on September 20, 2001. In the ensuing time period, the United States has launched an invasion of Afghanistan to destroy Al Qaeda, the terror organization behind the September 11 attacks, and an invasion of Iraq to depose President Saddam Hussein. Recently the administration of President Barack H. Obama has ordered the U.S. Department of Defense to discontinue the use of the term, to be replaced with "Overseas Contingency Operations." Since 2001 there has been a great deal of controversy over how to properly define terrorism, and about which organizations should be considered the enemy in the war. Likewise, questions about the conduct of the war have plagued American and allied military forces, with allegations of torture of enemy detainees drawing particular international condemnation.

The term "War on Terrorism" has been used in reference to confrontations between democratic societies and specific terror movements since the 19th century. In the 1880s it referred to efforts to halt outbreaks of violence related to international anarchy movements. In the 1930s British forces applied the term to their counterinsurgency operations in Palestine, particularly attempts to put down the Arab Revolt (1936–1939) and attempts to eradicate the proindependence Israeli groups Irgun and Levi. In the 1960s it was once again applied to events related to Palestine, specifically international efforts to end airline hijackings and other terror attacks.

Attempts to link war, a legal term accompanying an international belligerent status to an ideological concept have typically not fared well in history. In 1964 President Lyndon B. Johnson declared "War on Poverty," planning to expand social services and employment opportunities to raise the standard of living for the poorest segment of American society. Likewise in 1969 President Richard M. Nixon declared a "War on Drugs," hoping to eradicate the possession, distribution, and recreational use of illicit controlled substances. Unfortunately, in both examples, measuring



A member of the 55th Signal Company, Combat Camera, kneels with his digital video camera before conducting a sensitive site exploration (SSE), in the eastern central village of Hesarak, located outside of Kabul, Afghanistan, during Operation ENDURING FREEDOM, on July 16, 2002. (Department of Defense)



U.S. President George W. Bush (center), European Council President and Greek Prime Minister Konstandinos Simitis (left), and European Commission President Romano Prodi (right) conduct a joint press conference discussing the fight against global terror in the East Room of the White House on June 25, 2003. (White House)

progress, much less determining a condition of victory, proved difficult, if not impossible. Likewise defining the conditions of victory in the War on Terror, a struggle against both ideology and activities, may prove an impossible goal.

Another fundamental problem associated with the War on Terrorism was the lack of specificity regarding the enemy. As of 2001 more than 100 definitions of terrorism could be found in national and international laws, including more than 2 dozen used by different agencies of the U.S. government. Unsurprisingly, agencies tended to define terrorism in terms of their own missions. As such, the Department of Justice (DOJ regarded terrorism primarily as a criminal problem, properly addressed by law enforcement agencies. In contrast, the Department of Defense (DOD) considered terrorism as a military problem, noting that terrorists do not fall under the protections of international law established by the Geneva Conventions of 1949. The State Department viewed terrorism primarily as a diplomatic issue, to be resolved through negotiations and international cooperation. No international consensus regarding the definition of terrorism existed, as many nations and agencies defined certain "terrorist organizations" as freedom fighters, insurgents, or legitimate opposition parties. Even after the presidential declaration of a War on Terrorism, the U.S. government could not agree upon a list of terror organizations in the world, although it quickly became clear that not all terrorist organizations would be targeted equally in the conflict, if they were mentioned at all. In particular, the Irish Republican Army, long considered a terrorist organization by America's staunchest ally, Great Britain, did not make the list of terror organizations released in 2002. In addition, the determination of "state-sponsored terrorism," a legal status in which a foreign nation is considered to be directly supporting terrorist activities, is often a political decision rather than an absolute statement of fact.

On September 11, 2001, 19 members of Al Qaeda, a terror organization led by Osama bin Laden and based in the rugged mountainous terrain of Afghanistan, hijacked four commercial airplanes. The terrorists deliberately flew two of the airliners into the two tallest skyscrapers of the World Trade Center in New York City, leading to the collapse of the towers as well as two surrounding buildings through fire and structural damage. The third hijacked plane crashed into the Pentagon building outside Washington, D.C., while the fourth failed to reach its target, also in Washington, D.C., when passengers and crew attempted to overpower the hijackers and regain control of the plane. It crashed in a rural area outside Shanksville, Pennsylvania. All told, the hijackings and subsequent crashes killed 2,974 victims, as well as all of the hijackers, making it the deadliest terrorist attack in American history. Al Qaeda immediately claimed credit for the attacks, which were met with condemnation from most of the international community but celebration among radical elements of violent Islamic factions. The collapse of the World Trade Center buildings caused billions of dollars in damages, and created a hazardous environment for cleanup crews searching for survivors in the rubble.

The first American military response to the September 11 attacks began on October 4, 2001, with the commencement of Operation Active Endeavor, a North Atlantic Treaty Organization

(NATO) effort to combat weapons smuggling in the Eastern Mediterranean. Three days later, NATO forces, operating under a United Nations mandate, led an International Security Assistance Force (ISAF) to Afghanistan in pursuit of Al Qaeda and Bin Laden. Eventually, 46 nations contributed military forces to the endeavor, with the largest contingents coming from the United States and the United Kingdom. The campaign began with aerial support for the Afghan Northern Alliance, a rebellious military force already struggling for control of the nation which had been under the control of the Taliban since 1996. The Taliban, a fundamentalist sect of Wahhabi Sunni Muslims, had instituted an extremely restrictive version of Sharia law over the nation. It had also openly hosted Al Qaeda, which established training camps throughout the countryside.

Public support for the attacks on Afghanistan was both immediate and overwhelming. With the assistance of the ISAF, the Northern Alliance forces were able to remove the Taliban from power, with its leaders killed, captured, or driven into hiding. However, the difficult terrain of the region allowed Taliban supporters to retreat into the mountain regions, joined by Al Qaeda militants, to conduct an insurgent campaign against the newly instituted government of Afghanistan. On November 9, 2001, Northern Alliance forces, supported by ISAF airpower and special forces units from ISAF members, captured the strategically valuable city of Mazar-i-Sharif. This capture placed airfields in allied hands, allowing the airlift of American soldiers into the city. Only four days later Northern Alliance forces captured the capital, Kabul. By the end of the month, Kandahar was the only city remaining under Taliban control. Most of the Taliban and Al Qaeda fighters had fallen back to the Tora Bora cave complex near the Pakistani border. While several hundred fought a rearguard action, most of the remaining leadership of the Taliban and Al Qaeda retreated across the border into the lawless tribal regions of Pakistan.

In 2002 ISAF ground forces entered Afghanistan with the intention of consolidating control over the major population centers and capturing or killing Bin Laden and his chief lieutenants. Unfortunately while the destruction of the terror camps throughout the countryside proved relatively straightforward, capturing the leadership of Al Qaeda resulted in a series of failures. Operation Anaconda, designed to sweep the Tora Bora complex with thousands of NATO troops, pushed the main body of enemy forces into Pakistan, and inflicted hundreds of casualties, but did not destroy the combat power of the anti-U.S. forces in Afghanistan. For the next three years Taliban and Al Qaeda forces recuperated, recruiting new fighters and hiding in Waziristan, across the Pakistani border. The ISAF rules of engagement did not allow the pursuit of enemy forces across the Pakistani border, and the military forces of Pakistan proved unable or unwilling to destroy the insurgents, ensuring that Taliban and Al Qaeda militants could retreat to an effective sanctuary behind the sovereignty of the Pakistani borders.

Also in 2002 Operation Enduring Freedom expanded to include an advisory role in the Philippines, Georgia, the Horn of Africa, and the Trans-Sahara. In each case, advisory teams, led by American military personnel, provided training and direct support to combat radical Islamic terrorists in each region.

On October 12, 2002, members of Jemaah Islamiyah, a largely-Indonesian Islamic group linked to Al Qaeda, detonated a series of suicide bombs in Bali, primarily targeting an area of nightclubs frequented by Western tourists. More than 200 victims died in the attacks, the majority of foreign nationality, including 7 Americans. The bombings demonstrated the global reach of terror institutions associated with Al Qaeda.

While the search for Bin Laden continued in the southeastern regions of Afghanistan, the interim government of Afghanistan, constituted in December 2001 under Hamid Karzai, worked to consolidate control over the country. The task proved incredibly difficult, as Afghan government forces came under increasingly effective guerrilla attacks launched by pro-Taliban insurgents. Although control over the urban centers of the nation was established relatively quickly, the rural regions proved far less tractable. A related problem revolved around the suppression of poppy crops, used in the production of opiates, including heroin. Insurgent forces, in control of much of the cropland, used the lucrative drug trade to fund their operations.

While American units remained heavily engaged in Afghanistan, President Bush and Secretary of War Donald Rumsfeld turned their attention to a different threat. In an address to the United Nations Security Council on September 12, 2002, Bush introduced the idea that Iraq, in possession of weapons of mass destruction (WMD), had offered support to international terrorist organizations, including Al Qaeda, and thus represented a direct threat to the peace of the Middle East region. In October the U.S. Congress passed the "Joint Resolution to Authorize the Use of United States Armed Forces Against Iraq." Although this resolution did not contain a timetable for any direct military action against Iraq, it did authorize the president to use any means necessary against Iraq to compel the Iraqi government to submit to UN weapons inspections. On November 13 Hussein accepted UN Resolution 1441, calling for complete and open inspections of Iraqi weapons programs, with the inspection team headed by United Nations Monitoring, Verification, and Inspection Commission chairman Hans Blix, and International Atomic Energy Agency chairman Mohamed ElBaradei. In February 2003 the inspectors reported they had discovered no significant evidence of a renewed Iraqi weapons program.

While the inspections occurred, the Bush Administration took its case for action to the American public, which strongly believed that Iraqi WMDs existed, even though they might never be found by the UN weapons inspectors. By early 2003 a majority of Americans supported military action to depose Hussein, despite the ongoing commitment of American forces in Afghanistan. In February Secretary of State Colin Powell presented evidence of Iraqi WMD production to the UN General Assembly. This presentation was followed by a proposed resolution authorizing the use of force in Iraq. However, in the face of Russian and French opposition on the UN Security Council, as well as a likely failure in the General Assembly, the proposal was withdrawn, leaving members of an American-led coalition to decide upon military action without United Nations sanction. At the same time that Powell was preparing

and presenting the case for war, American and British troops were sent to Kuwait in preparation for an invasion of Iraq.

The first overt military action of the Iraq War occurred on March 19, 2003, when American airplanes struck Hussein's presidential palace in Baghdad. The following day ground forces from the United States, Great Britain, Australia, and Poland crossed the Iraqi border, while special forces units led an amphibious assault upon the port of Basra. On March 26 an airborne brigade parachuted into northern Iraq, quickly allying with Kurdish rebels to occupy most of the region. Within three weeks, coalition forces occupied Baghdad, and commenced mopping-up operations against pockets of Iraqi resistance in Kirkuk and Tikrit. On May 1 President Bush announced the end of major combat operations in Iraq, despite the fact that Hussein and most of his senior leadership had not been captured or killed.

For the next seven months, coalition forces sought to capture senior Iraqi leadership, who rallied their countrymen to engage in a broad-based insurgency against the occupying forces. The guerrilla forces, aided by hundreds of weapons caches, launched thousands of attacks upon coalition troops, as well as representatives of the Iraqi Interim Government, created in June 2004, and the newly constituted permanent government elected in October 2005. Saddam Hussein remained at large until December 13, 2003, when U.S. forces found him taking refuge in a "spider hole" underground refuge at a farm near Tikrit. After his capture, Hussein was turned over to the Iraqi government, which placed him on trial for crimes against humanity. The trial, which lasted until November 5, 2006, resulted in a guilty verdict and a death sentence. On December 30 Hussein was hanged after confirmation of the sentence by the Iraqi Supreme Court of Appeals.

Despite the capture of Hussein, the nominal leader of the insurgency, resistance to the occupation forces continued to mount through 2006. In the spring of 2004 foreign fighters began to enter Iraq in significant numbers, many professing adherence to Al Qaeda in Iraq, a new organization affiliated with Al Qaeda and led by Abu Musab al-Zarqawi. At the same time, elements of the Shia Mahdi Army, a militia force hostile to the interim government, began a series of attacks upon coalition and government forces, particularly in the Baghdad region. In April 2004 American forces attempted to pacify the city of Fallujah, triggering a bloody battle that ended with the withdrawal of coalition forces from the area. They did not return for seven months, commencing the bloodiest battle of the war in the urban environment on November 7, 2004. After 46 days of fighting, including the loss of 95 American service personnel, the remaining insurgents fled the area, leaving a devastated city behind.

Also in 2004 allegations of the abuse of Iraqi prisoners at Abu Ghraib, a prison formerly used for political enemies of the Hussein regime, began to emerge in the Western media. The accusations were accompanied by photographs of American personnel humiliating and tormenting the captives. These graphic images proved a significant recruiting tool for both the Iraqi insurgency and the global Al Qaeda organization, rallying Muslims to oppose American intervention in

Islamic countries. The prisoner abuse scandal provoked worldwide condemnation, and tainted the nationwide elections held in early 2005, which were boycotted by Sunni Muslims who feared exclusion from the new government. Throughout the next two years the situation deteriorated into a civil war between Sunni and Shia elements, with coalition forces striving to maintain order and put down the insurgency.

As allegations of mistreatment at Abu Ghraib provoked widespread investigations into the conduct of the war, similar allegations began to emerge regarding the detainee facility at Guantanamo Bay, Cuba. This location, chosen as a secure holding compound for captured Taliban and Al Qaeda fighters from the Afghanistan theater, existed primarily to facilitate long-term interrogations of enemy prisoners. According to the Bush Administration, such captives did not qualify for prisoner of war status under the Geneva Convention Relative to Prisoners of War, and as such could be held indefinitely without access to international organizations or legal counsel. Enhanced interrogation techniques, including waterboarding and intimidation tactics, not only extracted intelligence material from prisoners at the camp, but also provoked international condemnation from human rights groups such as Amnesty International and the International Committee of the Red Cross. In 2009 President Obama announced that the detention facility would be shut down by the end of the year.

On January 10, 2007, President Bush announced that an additional 20,000 troops would be sent to Iraq, in a move quickly dubbed the "troop surge." General David Petraeus accompanied the force, replacing General George Casey as the commander of all coalition forces in Iraq. Tasked primarily with security operations, the additional troops increased the area under coalition control, eventually reducing insurgent attacks by up to 80 percent throughout Iraq by the end of 2008. In the same time period, coalition troops increased efforts to retrain the Iraqi Army, and by 2009 Iraqi troops began to assume control of key sectors, including the "Green Zone" adjacent to Baghdad. President Obama announced a planned withdrawal of all American combat troops by the end of 2010, although some training forces would remain in place through 2011.

As the number of troops in Iraq began to decline, the Obama Administration ordered an increase in deployments to Afghanistan, possibly hoping to create a similar surge to enhance security and end the pro-Taliban insurgency. At the same time, diplomatic pressure served to increase Pakistani military commitments to the tribal areas near the border, potentially eliminating the safe haven previously utilized by Afghan and foreign militants. As of 2009 Osama bin Laden remains at-large, occasionally demonstrating his continued role through the release of propaganda video and audio recordings. American operations in the War on Terrorism continue indefinitely, with combat forces engaged in Iraq and Afghanistan, and military and intelligence personnel deployed on four continents, with no solid definition of victory in a war against a concept.

Within the Military-Industrial Complex, the initial phases of each operation (Afghanistan and Iraq) seemed to support years of American weapons development. In both cases, American

equipment was successful in conventional operations against enemy combatants. However, as each theater descended into insurgency and irregular warfare, reassessment forced U.S. military suppliers, government policy makers, and military planners to reenvision effectiveness of established norms. Some argue that the United States did not learn counterinsurgency lessons from the Vietnam War, and that we are trying to fight these insurgencies with inappropriate equipment and doctrine. Over time, the Military-Industrial Complex responded with two interim solutions: high-technology weapons systems and non-Department of Defense contract personnel. The first solution includes intelligence gathering equipment such as Unmanned Aerial Vehicles (UAVs) with both offensive and defensive capabilities. Extension of this idea included more emphasis on satellite technology and cyber-warfare equipment, and the further evolution of network-centric warfare technology and doctrine. The second facet included contract security forces in training and combat roles to supplement allied forces in theater. Companies like Blackwater (United States) provide essential security roles as well as controversial effects, especially in Iraq. Fundamental changes in the U.S. Military-Industrial Complex are underway as the United States attempts to envision the new forms of warfare the military is facing and struggles with new technological approaches to dealing with insurgency and counterinsurgency. Toward these efforts, the U.S. Government has expanded spending and analysis to find new solutions to ongoing problems.

Paul Springer

See also: Bush, George Walker; Counterinsurgency (COIN); Department of Defense; Johnson, Lyndon Baines; Nixon, Richard Milhous; Rumsfeld, Donald; Vietnam War; Weapons of Mass Destruction (WMDs)

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GOLDWATER-NICHOLS DEFENSE REORGANIZATION ACT (1986)

Congressional Act, formally known as the Department of Defense Reform Act

of 1986, designed to enhance the ability of the U.S. Armed Services to operate more effectively in emphasizing joint operations. This Act, named for its lead sponsors Senator Barry M. Goldwater (R-Arizona) and Congressman William "Bill" Nichols (D-Alabama), was designed to address lingering problems associated with the compromises made in the crafting of National Security Act of 1947, which established the Department of Defense structure. Congressional sponsors and defense reform advocates had pushed for the changes to address problem areas generated by bureaucratic inefficiencies and interservice competition, as well as issues that had been identified in prior combat operations, ranging from the Korean War to Operation URGENT FURY (the U.S. invasion of Grenada in 1983).

The primary objectives of the Goldwater-Nichols Act were to strengthen civilian authority, improve the military advice provided to senior civilian leaders, reduce the effects of service parochialism and interservice rivalry, enhance the role of the chairman of the Joint Chiefs of Staff (JCS) and the Joint Staff, and improve the operational authority of the commanders-in-chief (CINCs) of the unified combatant commands.

The Goldwater-Nichols Act strengthened the authority of the secretary of defense and made the chairman of the JCS the "principal military advisor" to the president, secretary of defense, and the National Security Council (NSC). Previously, the JCS had provided collective recommendations, which were often compromises made among the service chiefs. Although the chairman remained outside the formal operational chain of command, the reforms allowed the president and the defense secretary to pass operational orders to the combatant commanders, especially the theater CINCs, through the JCS chairman.

The act also created a vice chairman position for the JCS and revised the Joint Staff responsibilities to clarify and enhance the staff role in the planning and decision-making process. Goldwater-Nichols also adjusted the defense personnel system to encourage service in joint organizations and to ensure that senior officers had career experiences and professional education that would provide a joint perspective in their leadership roles. Additionally, the Act clarified and enhanced the roles of the CINCs, who functioned as the theater or functional commanders in charge of military operations. At the time the Act was passed, the JCS chairman was Admiral William J. Crow, although the first chairman to be appointed under the new structure was General Colin L. Powell.

The effects of Goldwater-Nichols were clearly evident in the conduct of Operations DESERT SHIELD and DESERT STORM in 1990 and 1991 in response to the Iraqi invasion of Kuwait. During the conflict, General Powell played a key role in the national leadership as the principal military advisor. Additionally, President George H. W. Bush and Secretary of Defense Dick Cheney used Powell as the primary conduit for orders flowing to the theater CINC, General H. Norman Schwarzkopf. Schwarzkopf also found it useful to pass information back through the JCS chairman, as well as reporting directly to the defense secretary and the president.

Within the theater itself, Schwarzkopf fully exploited the Goldwater-Nichols

authority and the emphasis on joint efforts to create a highly effective joint and coalition force structure and to conduct a well-coordinated joint campaign for the liberation of Kuwait. Operation DESERT STORM was viewed by many analysts as a validation of the wisdom of the reforms implemented by the Goldwater-Nichols Act. In October 2002, Secretary of Defense Donald Rumsfeld directed that the functional and regional CINCs be referred to as "combat commanders" or "commanders," arguing that there can be but one commander-in-chief—namely the president of the United States. During U.S. military operations in Afghanistan in 2001 (Operation ENDURING FREEDOM) and Iraq in 2003 (Operation IRAQI FREEDOM), the wisdom of Goldwater-Nichols was once again clearly evident, as both operations were conducted with a great deal of efficiency and joint effort.

Jerome V. Martin

See also: Bush, George Herbert Walker; Cheney, Richard B.; Joint Chiefs of Staff; Persian Gulf War I; Persian Gulf War II; Revolution in Military Affairs (RMA); Rumsfeld, Donald

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GREAT SOCIETY

U.S. President Lyndon Johnson's domestic reform program. Influenced by President Franklin Delano Roosevelt's New Deal, Johnson fought for social justice, economic equity, and racial equality with legislation designed to "feed the poor and shelter the homeless, . . . provide education and medical care to the browns and the blacks and the lame and the poor." During his retirement, Johnson revealed to his most intimate biographer, Doris Kearns (Goodwin), that he knew he would be crucified no matter his course: "If I left the woman I really loved—the Great Society—in order to get involved with that bitch of a war on the other side of the world, then I would lose everything at home."

The climate that allowed for his initial success developed in the aftermath of President John F. Kennedy's assassination, along with the emerging civil rights movement, the increasing awareness of poverty, and a lessening of tension between the United States and the Soviet Union. Influential men such as Martin Luther King Jr. and Henry Luce supported his reforms. Sensing the urgency surrounding his program, Johnson sent 63 messages to Congress (the average number of presidential communications was only 2) that encompassed recommendations from 17 task forces.

The resulting legislation included the Elementary and Secondary Education Act, granting federal aid to impoverished children; the Voting Rights Act of 1965, guaranteeing African American prerogatives at the polls; and Medicare, providing medical assistance to the elderly. Despite these successes, the phrase "If it hadn't been for Vietnam" was inextricably tied to the strangling of dollars for



President Lyndon B. Johnson signs the Medicare program into law on July 30, 1965. On the right is former president Harry Truman, who became the first person to apply for the federal health care program. (Lyndon B. Johnson Presidential Library)

the Great Society program and its eventual failure to significantly change American society.

Brenda J. Martin

See also: Johnson, Lyndon Baines; Kennedy, John Fitzgerald; Vietnam War

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GRUMMAN

Grumman aircraft Engineering Corporation has been a long time producer of the U.S. Navy aircraft. Before World War II they engineered and produced Navy floatplanes, then during the war became a production center for Navy carrier-based aviation. Their long line of Navy aircraft included the *Wildcat,* the *Hellcat,* and the *Avenger.* At the end of the war Grumman contributed the Navy's first production jet fighter, the *F9F Panther.* Grumman continued to offer excellent Navy carrier jets with the *Intruder* and the popular *F-14 Tomcat.* In the Space Race, Grumman built the Lunar Lander, eventually producing 13 models. In 1969 Grumman changed its name to the Grumman Aerospace Corporation. By 1994 Grumman was purchased by Northrop, which merged into Northrop Grumman. The company continues to provide high-technology equipment for the Navy—including aircraft carriers and submarines at Northrop Grumman in



The Grumman F6F Hellcat, a Navy fighter plane, stands ready for takeoff aboard an aircraft carrier. (Library of Congress)

Newport News, Virginia—as well as delivery vans for the U.S. Postal Service. It is ranked today as the fourth largest defense contractor.

S. Mike Pavelec

See also: Space Race; United States Navy; Weapons, Air; Weapons, Sea; World War II

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H

HONEYWELL

Based in Minneapolis, Minnesota, Honeywell began a long relationship with the U.S. military during World War II. One of their first contributions was an autopilot device for aircraft. Honeywell concentrated its efforts on aircraft systems technology and refined components such as gyroscopes, guidance systems, and communications components. The relationship continued into the Vietnam Era, as the company's Defense Division produced electronics, bombs, mines, and chemicals to the military, including napalm. Their larger Chemical Division produced for both the military and civilian sectors. Today Honeywell International continues as a global leader in a variety of fields, such as auto parts, oil exploration, defense contracts, and corporate consulting. With the acquisition of Sperry Aerospace in 1986, Honeywell became an important producer of aircraft avionics and a major contributor to the U.S. Space Program.

S. Mike Pavelec



Members of the Honeywell Data Management and Recording Group are shown on a multi-input interactive display unit, such as is commonly found in airline cockpits, at their lab in Redmond, Washington, in 2001. In an effort to increase security on flights, the group is developing technology that will allow pilots to view a video image of the cabin through equipment already present in the cockpit. (AP/Wide World Photos)

See Also: National Aeronautics and Space Administration (NASA); Vietnam War; Weapons, Air; Weapons, Space; World War II

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HUGHES AIRCRAFT

Although owner Howard Hughes Jr. is best known for his eccentricities and prototype aircraft, Hughes Aircraft did not deliver airplanes to the military during or even after World War II. Hughes' ill-fated "Spruce Goose" was an engineering achievement, but was not put into production. Hughes Aircraft did, however, continue to thrive in the immediate postwar period as a source for electronics, radar, and communications systems for aircraft. Hughes further diversified into rockets, missiles (especially air-to-air missile systems), space platforms, and satellites, which became very lucrative ventures. Less successful, but still visible, were Hughes helicopters for the Army. Following Howard Hughes' death in 1976, components of his empire were divided and later sold to a number of competitors. Boeing and Raytheon now control the military-oriented divisions of the former Hughes Aircraft.

S. Mike Pavelec

See also: Boeing Company; Space Race; Weapons, Air; Weapons, Space; World War II

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I

IRAN-CONTRA AFFAIR

Political scandal in President Ronald Reagan's administration involving the illegal sale of weapons to Iran, the proceeds of which were used to illegally fund Nicaraguan Contra rebels. As its name implies, Iran-Contra was the linkage of two otherwise vastly different foreign policy problems that bedeviled the Reagan administration at the beginning of its second term in 1985—how to secure the release of American hostages held by Iranian-backed kidnappers in Lebanon, and how to support the Contra rebels fighting against Nicaragua's Cuban-style Sandinista government. In both cases Reagan's public options were limited, for he had explicitly ruled out the possibility of negotiating with hostage takers, and Congress refused to allow military aid to be sent to the Contras.

In August 1985 Reagan approved a plan by Robert McFarlane, National Security Agency (NSA) advisor, to sell more than 500 TOW antitank missiles to Iran via the Israelis in exchange for the release of Americans held by terrorists in Lebanon. (Reagan later denied that he was aware of an explicit link between the sale and the hostage crisis.) The deal went through, and as a follow-up, in November 1985 there was a proposal to sell HAWK antiaircraft missiles to Iran. Colonel Oliver North, a decorated Marine attached to the NSA's staff, was put in charge of these and subsequent negotiations. A number of Reagan's senior cabinet members—including Secretary of State George Shultz, Secretary of Defense Caspar Weinberger, and White House Chief of Staff Donald Regan—began to express reservations about this trade with Iran, for it not only was diametrically opposed to the administration's stated policy but also was illegal under U.S. and international law.

Nonetheless, Reagan continued to endorse arms shipments throughout 1986, and in all more than 100 tons of missiles and spare parts were exported to Iran by the end of the year. The policy's success in hostage releases proved limited, however, because while some

Americans were set free as acts of quid pro quo, others were quickly taken captive in their turn.

Meanwhile, North had begun secretly funneling the funds from the missile sales to Swiss bank accounts owned by the Nicaraguan Contra rebels, who used the money in part to set up guerrilla training camps run by agents of the Central Intelligence Agency (CIA). All this was in direct violation of the Second Boland Amendment, a congressional law passed in October 1984 that specifically forbade the U.S. government from supporting any paramilitary group in Nicaragua. To what extent North's superiors knew of the Contra connection at this stage remains unclear, as is the final amount of money supplied to the Nicaraguans, although it is thought to have been on the order of tens of millions of dollars. Later investigations suggested numerous accounting irregularities by North, but these were never proven.

On November 3, 1986, the affair became public when a Lebanese magazine, *Ash-Shiraa,* revealed that the Americans had been selling missiles to the Iranians. Reagan responded with a televised statement in which he denied any arms-for-hostages deal, and U.S. Attorney General Edwin Meese was ordered to conduct an internal inquiry. North and his secretary, Fawn Hall, immediately began shredding incriminating documents, but on November 22 Meese's staff discovered material in North's office that linked the Iranian shipments directly to the Contras. Meese informed Reagan, and on November 25 the U.S. Justice Department announced its preliminary findings to the press. North was fired, and NSA John Poindexter, who had replaced McFarlane, promptly resigned.



Lt. Col. Oliver North testifies before the joint House-Senate panels investigating the Iran-Contra affair on Capitol Hill on July 7, 1987. North served as an aide to the National Security Council (NSC) during the Reagan administration and was a key figure in the Iran-Contra scandal that erupted in 1986. (AP/Wide World Photos)

The following month, Reagan appointed an independent commission to investigate the affair, chaired by former Texas Senator John Tower. The commission's March 1987 report severely criticized the White House for failing to control its NSA subordinates, which led to the resignation of Regan. An apparently contrite President Reagan admitted to having misled the public in his earlier statements, although he pled sins of ignorance rather than design. A subsequent congressional inquiry lambasted the president for failings of leadership, but decided that he had not known about the transfers of money to the Contras.

In 1988 independent prosecutor Lawrence Walsh indicted North, Poindexter, and 12 other persons on a

variety of felony counts. In all, 11 were convicted, but North and Poindexter were later acquitted on Fifth Amendment technicalities. At the end of his term in office in December 1992, President George H. W. Bush pardoned 6 other persons implicated in the Iran-Contra scandal, including Weinberger and McFarlane.

Alan Allport

See also: Cold War; Foreign Relations; Reagan, Ronald Wilson

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ISRAEL

Middle Eastern state covering 8,019 square miles, slightly larger than the U.S. state of Massachusetts. With a 1948 (the year of its founding) population of approximately 1.2 million people, Israel borders on Egypt and the Mediterranean Sea to the west, Syria and Jordan to the east, and Lebanon to the north.

Modern Israel dates from the end of World War I and the resulting defeat of the Ottoman Empire. Based on the secret wartime Sykes-Picot Agreement between Britain and France to partition Turkish Middle Eastern territory, France was to secure control of Lebanon and Syria, with Britain receiving Palestine and Iraq. Following the Allied victory, the Paris Peace Conference awarded these areas as mandates under the new League of Nations, envisioning their ultimate independence.

The war also prompted the Zionist movement of Jews seeking a nation-state in Palestine. In order to enlist the support of international Jewry during the war effort, the British government issued the Balfour Declaration in 1917. The declaration announced London's support for the creation of a "national home for the Jewish people" in Palestine. The parameters of this home were not spelled out. In 1922 Britain split Palestine into Transjordan east of the Jordan River and Palestine to the west. The Jewish homeland would be in Palestine. There were several schemes for achieving this while balancing the interests of the Arab population with those of the Jewish minority and the goals of the Zionist movement. Contradictory British assurances to both sides failed to satisfy either the Zionists or the Arabs, however. Meanwhile, increasing numbers of European Jews arrived in Palestine and purchased land there, leading to Arab-Jewish rioting that the British authorities were not always able to control.

Events immediately before and during World War II accelerated the Jewish migration to Palestine. Adolf Hitler's persecution of the Jews in Germany as well as anti-Semitism in Poland and elsewhere led to increasing Jewish migration and interest in a Jewish state. Once the war began, Hitler embarked on a conscientious effort to exterminate world Jewry. During the Nazi-inspired Holocaust an estimated 6 million Jews perished. Late in the war and afterward, many of the survivors sought to immigrate to Israel. The great lesson of World War II for Jews was that they could not rely on other



On May 14, 1948, one year after the United Nations (U.N.) proposed carving two separate states out of Palestine, David Ben-Gurion declares the creation of the independent state of Israel. Despite U.N. endorsement, Arabs and Jews disagreed bitterly over the action. No independent Arab state was established in Palestine, and the independence of Israel was not recognized by any Arab government until 1980. (Hulton Archive/Getty Images)

nations; they would require their own independent state. The Holocaust also created in the West a sense of moral obligation for the creation of such a state. At the same time, however, the Arabs of Palestine were adamantly opposed to the implantation of a large foreign population in their midst.

After World War II, Jewish refugees and displaced persons streamed into Palestine, many of them only to be turned away by British naval ships patrolling Palestine's Mediterranean coast just for this purpose. At the same time, the British authorities wrestled with partitioning Palestine into Arab and Jewish states. Jews and Arabs proved intransigent, and in February 1947 after both rejected a final proposal for partition, Britain turned the problem over to the United Nations (UN). In November the UN General Assembly passed its own resolution to partition Palestine, with Jerusalem to be under a UN trusteeship. While the Jews accepted this arrangement, the Arabs rejected it.

In December 1945 the Arab League council announced that it would halt the creation of a Jewish state by force. The Arabs then began raids against Jewish communities in Palestine. The United States, with the world's largest and wealthiest Jewish population, became the chief champion and most reliable ally of the Jews. This position would, however, cost the United States dearly in its rela-

tions with the Arab world and would also influence Cold War geopolitics.

In January 1948 London announced its intention to withdraw from Palestine. This precipitous British policy led to war. The British completed the pullout on May 14, 1948, and that same day David Ben-Gurion, executive chairman and defense minister of the Jewish Agency, declared the existence of the independent Jewish state of Israel. Ben-Gurion became the first prime minister, a post he held during 1948 to 1953 and 1955 to 1963.

At first the interests of the United States and those of the Soviet Union regarding the Jewish state converged. U.S. recognition of Israel came only shortly before that of the Soviet Union. Officials in Moscow found common ground with the Jews in their suffering at the hands of the Nazis in the war and also identified with the socialism espoused by the early Jewish settlers in Palestine as well as with their anti-British stance. The Cold War, the reemergence of official anti-Semitism in the Soviet Union, and Moscow's desire to court the Arab states by supporting Arab nationalism against the West would soon change all that.

The Israeli independence proclamation led immediately to fighting. In the first Arab-Israeli War of 1948 and 1949, hard-pressed Israeli forces managed to stave off the far more numerous and better-equipped but poorly organized and inadequately trained Arab forces. In the process many Palestinians living in Israel either fled or were forced out of the territory.

Soviet military support for Egypt and Syria led to increased U.S. military support for Israel. The rise of Egypt's President Gamal Abdel Nasser only exacerbated the situation. Trumpeting Arab nationalism, Nasser blockaded Israeli ships in the Gulf of Aqaba and Israel's access to the Indian Ocean. Egypt also supported cross-border raids into Israeli territory by *fedayeen,* or guerrilla fighters. Nasser's turn to the Soviet Union for arms led to the withdrawal of U.S. support for his pet project of constructing a high dam at Aswan on the Nile. This led him to nationalize the Suez Canal. British Prime Minister Anthony Eden was determined to topple Nasser, and a coalition of Britain, France, and Israel then formed. Leaders of the three states developed secret plans whereby Israel would invade Egypt's Sinai Peninsula and move to the canal. Britain and France would then use this as an excuse to introduce military forces into the canal zone.

At the end of October 1956, Israeli forces swept into the Sinai, easily destroying Egyptian forces there. When Nasser's response to French and British demands proved unsatisfactory, their forces also invaded Egypt from Cyprus. Although the Soviet Union threatened to send volunteers, it was the strong opposition of the United States and heavy economic pressure brought to bear on Britain that proved decisive. All three powers subsequently withdrew their forces, greatly strengthening Nasser despite the abysmal showing of his armed forces. Israel was one of the chief winners of the 1956 war. It had cleaned out the *fedayeen* bases and secured a buffer of UN observers in the Sinai. It also ended the blockade of the Gulf of Aqaba.

The Soviet Union made good on Egyptian material losses from the war and, over the next decade, sent considerable quantities of additional arms to the

Arab states, including Egypt, Syria, and Iraq. In May 1967 Nasser moved Egyptian troops into the Sinai and ordered out the UN observers who served as a buffer with Israel. Believing that they would soon be attacked, Israeli leaders ordered a preemptive strike. On June 5, 1967, the Israeli Air Force wiped out most of the Egyptian Air Force on the ground and then struck the Syrians. Although Israel made a bid for Jordan to stay out of the war, that country joined the fighting against Israel and paid a heavy price for it. The Israelis won the so-called Six-Day War and in the process seized the Sinai Peninsula from Egypt, the West Bank of the Jordan River along with Jerusalem from Jordan, and the Golan Heights from Syria.

On October 6, 1973, at the start of the Jewish holy days of Yom Kippur, Egypt, now led by Anwar Sadat, launched a surprise attack on Israel. Joined by Syrian forces, the Egyptians caught the Israeli government of Prime Minister Golda Meier (1969–1974) by surprise and crossed over the Suez Canal, then took up defensive positions to destroy much of the counterattacking Israeli armor with Soviet-supplied antitank missiles. Ultimately, however, the Israelis beat back the Arab attacks. Having recrossed the canal, the Israelis were in position to drive on to Cairo. Both sides then agreed to a cease-fire.

Israel appeared menaced on all flanks except the Mediterranean. But in 1979 Sadat, dismayed by the inability of Washington to pressure Israel into concessions, took the unprecedented step of traveling to Israel in November 1977, eventually leading to the Camp David Agreement of September 1978 and a peace settlement between Egypt and Israel. Begun in 1979 Israel completed a withdrawal of the Sinai Peninsula in 1982. Syria meanwhile had moved closer to the Soviet Union, and the Syrians then moved into Lebanon in support of Palestinians there and the Lebanese Muslims. This produced civil war in Lebanon, and following the shelling of Israeli settlements from southern Lebanon, Israeli forces invaded Lebanon in 1982. In September 1983 Israeli forces withdrew to the Awali River. During 1987 to 1991 Israeli security forces had to deal with a wide-scale uprising by Palestinians known as the Intifada within Israeli-occupied territory in the West Bank and Gaza. The end of the Cold War brought a large influx of hundreds of thousands of Jews from the Soviet Union. Despite peace between Egypt and Israel, at the end of the Cold War a general Middle Eastern peace agreement remained illusive.

Domestically, the Israeli state was organized along the British parliamentary model, with the executive (cabinet) selected by the Knesset (parliament) and subject to it. Israel also had a system of proportional representation in which seats in the Knesset were based on the percentage of votes received. Even parties receiving relatively few votes had representatives in the Knesset. Such parties included those representing the Arab population, those espousing various degrees of Jewish orthodoxy, the communists, and Revisionist Zionist groups.

Until 1977 the Mapai-Labor Party controlled the Knesset. It had deep roots in the socialist movements in Eastern Europe. Mapai-Labor assumed that the party and state were coterminous. Through control of the kibbutz movement of socialist communes, the massive social welfare system of the Histadrut, the powerful military and paramilitary organiza-

tions that became the Israel Defense Forces (IDF), the leadership of the Jewish Agency before independence, and sufficient seats in the Knesset, Mapai-Labor leaders such as Ben-Gurion, Meir, and Moshe Dayan dominated Israeli politics for three decades after independence. The party was strongly secular in orientation. IDF chiefs of staff often became prime ministers, and it was common for Mapai-Labor leaders to rotate from military command to seats in the Knesset, leadership posts in the Histadrut, and cabinet ministries.

The chief opposition party in these years was the Likud. It supported a Greater Israel and had strong roots in Zionists opposed to the British mandate. It also espoused capitalism over socialism and was a voice for the growing Jewish immigrant population, including those from the Soviet Union. The religious Jewish parties were the wild cards in Israeli politics. Their agendas included introduction of orthodox Jewish traditions as the basis for Israeli law. These ranged from determinations of who could be defined as Jewish and thus were entitled to settle in the state, the strict observation of the Sabbath, and such issues as marriage and divorce and exemption from military service. Such parties exercised undue influence because proportional representation required any party with a plurality of seats in the Knesset to obtain the support of smaller parties. Until 1977 Mapai-Labor was able to form governments by making concessions to the religious parties and those farther to the Left. When the Likud Party took control in 1977, it had to form coalitions with minority parties in much the same fashion as had Mapai-Labor. This allowed the religious parties to continue to influence policy. Mapai-Labor continued to be a force as, at times, the Likud had to include Mapai-Labor in its coalition governments.

Israel's international relations did not change much when power passed from Mapai-Labor to Likud to coalition governments. Israel consistently relied on the United States, which regularly made the Jewish state its largest foreign aid recipient. Ironically, the Federal Republic of Germany (FRG, West Germany) was an important support for Israel in its early years. Chancellor Konrad Adenauer's government extended billions of dollars in assistance in recognition of the crimes that Nazi Germany had committed against world Jewry during World War II. France, which had been a chief supporter and arms supplier to the Jewish state, became estranged from Israel following the 1967 War when an angry President Charles de Gaulle withdrew French military assistance as a consequence of the preemptive Israeli attack.

From an internal perspective, the chief issues for Israel have been disputes over whether Israel should be a secular or religious state (in the West Bank, Jews may soon well be a minority) and over the makeup of Israeli territory. There has also been a continuing war against terrorism and suicide bombers. The 2005 Israeli withdrawal from the Gaza Strip by a government led by the expansionist Likud Party reflects these ongoing debates and concerns. Israeli voters remained keenly interested in such issues as the role of the Orthodox minority, the rights of Israeli Arabs, the fate of Israeli settlements in Gaza and the West Bank, and the ups and downs of the economy.

Daniel E. Spector and
Spencer C. Tucker

See also: Cold War; France; Germany, Federal Republic of (FRG, West Germany) Soviet Union (USSR); United Kingdom (UK);

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J

JOHNSON, LOUIS ARTHUR (1891–1966)

U.S. secretary of defense. Born on January 10, 1891, in Roanoke, Virginia, Louis Johnson graduated from the University of Virginia Law School in 1912. Admitted to the West Virginia bar, he established his own firm and served in the West Virginia House of Delegates. During World War I he enlisted in the U.S. Army. Earning a commission through officers' candidate school, Johnson saw combat in France and was a major by war's end. One of the founders of the American Legion and a longtime Democratic Party leader in West Virginia, he served as an assistant secretary of war from 1937 to 1940.

From 1940 to 1949 Johnson practiced law and remained active in Democratic Party politics. In return for his fund-raising efforts during the hotly contested 1948 presidential race, President Harry S. Truman named Johnson as defense secretary, replacing James Forrestal, in March 1949. Looking to reduce military expenditures and pay down the national debt, Truman ordered Johnson to conduct a complete review of the American defense structure. What resulted was the so-called Johnson Axe, which culminated in deep across-the-board military cuts. Johnson believed that Defense Department unification and closer cooperation between the services would reduce needless duplication and that the creation of a strong nuclear deterrent would hold down conventional military expenses.

Johnson's plans for atomic weapons control alienated the U.S. Navy. He advocated giving sole control over American atomic power to the U.S. Air Force and also ordered additional B-36 bombers. In addition, he canceled a key naval program, the 65,000-ton flush-deck aircraft carrier *United States.* When Secretary of the Navy John Sullivan resigned in protest, Johnson replaced him with a fund-raising friend, Francis Matthews, derisively known as the "row-boat secretary" for his complete lack of naval experience. Leading naval officers were outraged, and in congressional

hearings during the so-called Revolt of the Admirals, the Navy slandered the Air Force by denigrating the abilities of the B-36. When Johnson promptly sacked Chief of Naval Operations Admiral Louis Denfeld, other naval officers resigned in acrimonious protest. Only after much wrangling did the Defense Department reach a consensus that the nation needed multiple nuclear options to deal with the Soviet threat.

Johnson's tenure at the Pentagon proved short and stormy. His legendary acerbity no doubt contributed to his downfall, but his decisions also failed to soothe the interservice rivalries in the formative years of the Defense Department. Secretary of the Air Force Stuart Symington resigned over budget cuts, and Secretary of the Army Kenneth Royall departed because of racial integration of the military, which Johnson strongly supported. Congressmen and senators found their constituents unhappy with the impact of defense cuts on local economies. When the Korean War exposed America's military unpreparedness in Summer 1950, Johnson became a political liability and a convenient scapegoat. Although Truman himself had pushed for defense cutbacks, at the president's request Johnson resigned his post and left the Defense Department on September 19, 1950. Returning to private life, he practiced law until his death in Washington, D.C., on April 24, 1966.

Thomas D. Veve

See also: Korean War; Truman, Harry S.; United States Air Force; United States Navy; Weapons, Nuclear; World War I

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JOHNSON, LYNDON BAINES (1908–1973)

Democratic politician, U.S. congressman (1938–1949), U.S. senator (1949–1961), vice president (1961–1963), and president of the United States (1963–1969), Lyndon Johnson was born in Stonewall, Texas, in a farmhouse on the Pedernales River on 27 August 1908. His early life was touched by rural poverty, which would later make him a champion of the poor and underprivileged. He worked his way through Southwest Texas State Teachers College and subsequently taught mostly poor Mexican students in an inner city Houston high school.

In 1931 Johnson became active in Democratic Party politics and that same year went to Washington, D.C., to serve as secretary to a Texas congressman. A shrewd, brilliant, and sometimes overbearing politician, Johnson honed his political skills early on and successfully



President Lyndon B. Johnson greets American troops in Vietnam in 1966. Johnson's Project 100,000, which aimed to enhance the opportunities of underpriveleged youth from urban areas by lowering military entrance requirements, significantly increased the number of African Americans in the military in 1966. (National Archives)

won a seat in the U.S. House of Representatives in 1937, which he retained until 1949. During World War II he served briefly as a lieutenant commander in the U.S. Navy.

In 1948 Johnson won election to the Senate and in 1953 became its youngest majority leader in history. As majority leader, he worked with President Dwight D. Eisenhower's administration to maintain a bipartisan foreign policy. Johnson was instrumental in defeating the proposed Bricker Amendment, which would have prohibited executive agreements with foreign powers, and also supported the Formosa Resolution and the Eisenhower Doctrine.

In 1960 Johnson was elected vice president on the Democratic ticket with President John F. Kennedy. Riding in the Dallas motorcade on 22 November 1963 during which Kennedy was assassinated, Johnson was sworn in as president that same day in Dallas and moved decisively to bring the mourning nation together in the days and weeks after Kennedy's murder. Taking advantage of the outpouring of grief immediately following the assassination, Johnson mustered his pitch-perfect political skills to ensure congressional passage of the landmark 1964 Civil Rights Act, which forbade discrimination in all public places and in hiring practices based on race, religion, sex, or national origin. This success marked one of the high points in the ongoing civil rights movement. He also pushed through Congress a series of stimulative tax cuts that had originally been proposed by Kennedy. Hugely popular, Johnson won the presidency in his own right in the November 1964

election, handily defeating his conservative Republican opponent, Barry Goldwater, with 61 percent of the popular vote.

Despite the lengthening shadows cast by the Vietnam War, Johnson took full advantage of his electoral mandate by ushering in some of the most far-reaching domestic reforms since the New Deal. After much arm-twisting, Johnson pushed the 1965 Voting Rights Act through Congress and declared that the United States must "build a Great Society" in which poverty and social injustices would be eradicated. His ambitious program called for reforms in education, health care, and urban renewal and also called for the elimination of rural isolation and poverty, among many other reforms. In 1965 Congress passed the Medicare Act, a government-subsidized health care program for senior citizens and the first major initiative aimed at the elderly since the Social Security Act 30 years earlier.

Johnson soon became overwhelmed by the course of events in Vietnam. Ultimately, many of his Great Society programs languished as the war consumed additional resources and more public attention. Upon becoming president, Johnson had informed the South Vietnamese government that he would stay the course and help it secure victory over the communist insurgency. He approved OPLAN 34A, a U.S.-supported series of raids by the South Vietnamese along the Democratic Republic of Vietnam's (DRV, North Vietnam) coast. A raid on 31 July 1964, coupled with a signals intelligence-gathering DESOTO patrol by the destroyer *USS Maddox*, helped precipitate the Gulf of Tonkin incidents and led to the subsequent Tonkin Gulf Resolution, giving the president carte blanche to deploy U.S. forces in Southeast Asia. He used the resolution as legal justification to escalate the Vietnam War.

After the 1964 election, Johnson felt obliged to reverse the deteriorating military and political situation in the Republic of Vietnam (ROV, South Vietnam). With the support of most of his civilian and military advisors, he pursued a policy of gradual escalation beginning in 1965. In February 1965 he ordered a sustained bombing campaign against North Vietnam, code-named Operation ROLLING THUNDER. In March, he deployed the Marines to protect U.S. airbases. U.S. Army troops followed, and Johnson announced an open-ended commitment to South Vietnam in late July. By the end of 1965, he had dispatched 180,000 American troops to Vietnam. He defended his decision to escalate the war as a "political necessity" that he believed was essential to secure passage of Great Society legislation. In the decision to enforce American military goals in South East Asia, Johnson strengthened the ties within the Military-Industrial Complex, providing more funding for military procurement for the conflict. Military spending superceded Great Society programs in both the short and long term.

Other foreign policy issues came to the fore, including the 1965 American intervention in the Dominican Republic. Johnson dispatched Marines there on 28 April 1965 to protect American lives and prevent a potential communist takeover of the government. In June 1967, Johnson met with Soviet Premier Alexei Kosygin for two days in Glassboro, New Jersey, to discuss Vietnam, the impact of the Six-Day War in the Middle East, and the potential for arms control talks and nuclear nonproliferation.

In the end, Vietnam overshadowed everything else. During 1966–1967, American troop strength in Vietnam escalated sharply, bombing increased, casualties mounted, and yet the war ground on without resolution. Johnson grew increasingly frustrated by critics of his Vietnam policies, some of which were from his own party. Public disaffection with the war also increased. Large antiwar demonstrations became commonplace by 1967, some of which resulted in violence and rioting. Meanwhile, as the war siphoned resources away from domestic programs, racial tensions increased dramatically, widespread urban riots and arson plagued the nation, and college campuses became hotbeds of political radicalism and antiwar activism. Johnson, who once seemed politically invincible, appeared incapable of dealing with the mounting crises.

In late January 1968, after the administration had assured the American public that the war was being won, North Vietnamese and Viet Cong forces launched the Tet Offensive, a nationwide military operation that destroyed the credibility of the Johnson administration. Although a tactical victory for the Americans and South Vietnamese, Tet 1968 permanently undermined American support for the war and the president who escalated it. With 500,000 U.S. troops in Vietnam and growing violence and radicalism on the home front, Johnson took the nation by surprise on 31 March 1968, following a setback in the Democratic primary in New Hampshire, by announcing that he would not seek another presidential term. He then authorized exploratory truce talks with the North Vietnamese, which almost immediately stalled as the fighting continued. Johnson left office a broken man, both physically and mentally. He was immensely unpopular by 1968 and would always be associated with America's failure in Vietnam. In retirement, he wrote his memoirs. Johnson died on 22 January 1973 at his ranch in Johnson City, Texas.

Richard M. Filipink Jr.

See also: Eisenhower, Dwight; Eisenhower Doctrine; Great Society; Kennedy, John; Vietnam War; World War II

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JOINT CHIEFS OF STAFF (JCS)

Formally founded in U.S. law by the National Security Act of 1947, America's JCS traces its roots to Theodore



The Joint Chiefs of Staff of the Korean War era meet on November 29, 1949. From left to right they are: Chief of Naval Operations Admiral Forrest P. Sherman; Chairman of the Joint Chiefs of Staff General Omar N. Bradley; Air Force Chief of Staff General Hoyt S. Vandenberg; and Army Chief of Staff J. Lawton Collins. (National Archives)

Roosevelt's Joint Army and Navy Board. However, that board had little authority and proved ineffective in guiding U.S. national security policy and planning during the post-World War I and early World War II era. As President Roosevelt's military advisor (chief of staff to the commander in chief), Admiral Leahy created a staff that included the chiefs of staff of the services to serve with him in that capacity. The resulting JCS had only four executive members and was the central planning body that coordinated U.S. military plans and operations during World War II. President Harry Truman continued to use it as a formal planning body during the immediate postwar years, but initiated legislation that established America's present national security structure in July 1947. The Air Force became a separate military service under the Act, but otherwise the Joint Chiefs saw little change in structure and authority. The law's first modification came in 1949, creating the position of chairman of the JCS and designating the individual holding the position the most senior serving U.S. military officer. The chairman was a voting member of the newly established National Security Council (NSC), but never had authority over the individual service chiefs, their forces, or that of the combatant commands. In 1978 the commandant of the Marine Corps acquired observer status on the Joint Chiefs and a "voting member" on issues related to the Marine Corps.

The Joint Chiefs initially served as the president's and secretary of defense's principle military planners and advisors, but the 1986 Goldwater-Nichols Act transferred the first of those responsibilities to the unified combatant commanders. It also established the position of vice chairman, who may act in the chairman's absence, and gave the Marine Corps commandant equal status and authority as the other service chiefs. The 1992 National Defense Authorization Act expanded the vice chairman a full voting member, and a senior enlisted advisor to the chairman was added in 2005 to advise the chairman on issues affecting the military's enlisted people.

The JCS has a mixed record in the eyes of most American historians. Some have noted the early Chiefs focused almost exclusively on military matters, ignoring the political factors and impacts in their advice (e.g., declaring Korea was outside America's area of strategic concern in 1950, and Berlin indefensible in 1948). Others have commented that the Chiefs were too concerned about political factors to give sound military advice during the Vietnam War and America's second war with Iraq. Critics feel the Joint Chiefs' selection is too political to ensure they fill their primary mission of providing sound professional advice to the president or, in some cases, became so popular and influential they could block presidential policy intentions (e.g., General Colin Powell as President Clinton's Chief JCS). In any case, the Joint Chiefs remain the primary venue for America's long-range, strategic planning, and its chairman remains the president's principle source of military counsel.

Carl Otis Schuster

See also: Clinton, William Jefferson; Goldwater-Nichols Defense Reorganization Act; Korean War; Persian Gulf War I; Persian Gulf War II; Roosevelt, Franklin Delano; Truman, Harry S.; Vietnam War

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KENNEDY, JOHN FITZGERALD (1917–1963)

U.S. congressman (1946–1952), senator (1953–1961), and president of the United States (1961–1963). John F. Kennedy was born in Brookline, Massachusetts, on May 29, 1917, into a large and wealthy Irish Catholic family. His father, Joseph P. Kennedy, was a multimillionaire with presidential aspirations, and his mother, Rose Fitzgerald, came from a prominent and politically active Boston family. After attending the elite Choate Preparatory School in Wallingford, Connecticut, Kennedy earned his bachelor's degree from Harvard University in 1940. He also spent six months of his junior year working in the U.S. London embassy while his father was U.S. ambassador to Great Britain. His observations during this time inspired his senior honors thesis on British foreign policies, which was published the year he graduated under the title *Why England Slept.* During World War II Kennedy served four years in the U.S. Navy. He was awarded the Navy and Marine Corps Medals and the Purple Heart for action as commander of *PT-109,* which was rammed and sunk by a Japanese destroyer in the South Pacific.

Kennedy worked for a brief time as a newspaper correspondent before entering national politics at the age of 29, winning election as Democratic congressman from Massachusetts in 1946. In Congress he backed social legislation that benefited his largely working-class constituents and criticized what he considered to be President Harry Truman's "weak stand" against communist China. Throughout his career, in fact, Kennedy was known for his vehement anticommunist sentiments.

Kennedy won election to the U.S. Senate in 1952. In 1953 he wed the New York socialite Jacqueline Bouvier. Kennedy had a relatively undistinguished Senate career. Never a well man, he suffered from several serious health problems, including a back operation in 1955 that nearly killed him. His illnesses limited his ability to become an activist



U.S. President John F. Kennedy and Soviet Chairman Nikita Khrushchev meet in Vienna, Austria, on June 3–4, 1961. (John F. Kennedy Library)

senator. While he recuperated from his back surgery, he wrote—with his wife's assistance—his second book, *Profiles in Courage,* for which he won the 1957 Pulitzer Prize in history.

Despite his fragile health and lackluster performance in the Senate, Kennedy nonetheless was reelected in 1958 after losing a close contest for the vice presidential nomination at the Democratic National Convention in 1956. He now set his sights on the presidency. Four years later he won the Democratic nomination for president on the first ballot. As a northerner and Roman Catholic he recognized his weakness in the South and shrewdly chose Senator Lyndon Baines Johnson of Texas as his running mate. As a candidate Kennedy promised more aggressive defense policies, health care reform, and housing and civil rights programs. He also proposed his New Frontier agenda, designed to revitalize the flagging U.S. economy and to bring young people into government and humanitarian service. Winning by the narrowest of margins, he became the nation's first Roman Catholic president. Only 43 years old, he was also the youngest man ever to be elected to that office.

In his inaugural address Kennedy spoke of the need for Americans to be active citizens and to sacrifice for the common good. His address, which in some respects was a rather bellicose call to arms, ended with the now famous exhortation "ask not what your country can do for you—ask what you can do for your country." As president, Kennedy set

out to fulfill his campaign pledges. Once in office he was forced to respond to the ever-more-urgent demands of civil rights advocates, although he did so rather reluctantly and tardily. By establishing both the Alliance for Progress and the Peace Corps, Kennedy delivered American idealism and goodwill to aid developing countries.

Despite Kennedy's idealism, no amount of enthusiasm could blunt the growing tension of the U.S.-Soviet Cold War rivalry. One of his first attempts to stanch the perceived communist threat was to authorize a band of American-supported Cuban exiles to invade the communist island in an attempt to overthrow Fidel Castro in April 1961. The Bay of Pigs invasion, which turned into an embarrassing debacle for the president, had been planned by the Central Intelligence Agency (CIA) under the Dwight Eisenhower administration. Although Kennedy harbored reservations about the operation, he nonetheless approved it. The failure heightened already high Cold War tensions with the Soviets and ultimately set the stage for the Cuban Missile Crisis of 1962.

Cold War confrontation was not limited to Cuba. In the spring of 1961 the Soviet Union renewed its campaign to control West Berlin. Kennedy spent two days in Vienna in June 1961 discussing the hot-button issue with Soviet Premier Nikita Khrushchev. In the months that followed, the crisis over Berlin was further intensified by the construction of the Berlin Wall, which prevented East Berliners from escaping to the West. Kennedy responded to the provocation by reinforcing troops in the Federal Republic of Germany (FRG, West Germany) and increasing the nation's military strength. The Berlin Wall, unwittingly perhaps, eased tensions in Central Europe that had nearly resulted in a superpower conflagration. In the meantime Kennedy had begun deploying what would be some 16,000 U.S. military "advisors" to prop up Ngo Dinh Diem's regime in the Republic of Vietnam (ROV, South Vietnam). In so doing, Kennedy had put the United States on the slippery slope of full-scale military intervention in Vietnam. In the midst of these crises, Kennedy strengthened the Military-Industrial Complex by placing a greater U.S. interest in weapons development—especially strategic nuclear forces.

With the focus directed away from Europe, the Soviets began to clandestinely install nuclear missiles in Cuba. On October 14, 1962, U.S. spy planes photographed the construction of missile-launching sites in Cuba. The placement of nuclear missiles only 90 miles from America's shores threatened to destabilize the Western Hemisphere and undermine the uneasy Cold War nuclear deterrent. Kennedy imposed a naval quarantine on Cuba, designed to interdict any offensive weapons bound for the island. The world held its collective breath as the two Cold War superpowers appeared perched on the abyss of thermonuclear war, but after 13 harrowing days of fear and nuclear threat, the Soviet Union agreed to remove the missiles. In return the United States pledged not to preemptively invade Cuba and to remove secretly its obsolete nuclear missiles from Turkey.

Both Kennedy and Khrushchev had been sobered by the Cuban Missile Crisis, realizing that the world had come as close as it ever had to a full-scale nuclear war. Cold War tensions were diminished when the Soviets, British, and Americans signed the

Limited Nuclear Test Ban Treaty on August 5, 1963, forbidding atmospheric testing of nuclear weapons. In October 1963 the same three nations agreed to refrain from placing nuclear weapons in outer space. To avoid potential misunderstandings and miscalculations in a future crisis, a hotline was installed that directly linked the Oval Office with the Kremlin.

Following the nerve-racking Cuban Missile Crisis, Kennedy looked toward 1963 with considerable enthusiasm. He told close advisors that after the election he planned to draw down U.S. forces in Vietnam. He was also buoyed by his successful efforts to reduce Cold War tensions, and he began planning his 1964 reelection campaign by visiting constituents around the nation. In an effort to mediate between warring conservative and liberal Democratic Party factions in Texas, a state that was vital to his reelection, in November 1963 Kennedy embarked on a whirlwind tour of the state with his wife and vice president in tow. On November 22 in Dallas, Texas, just as Kennedy's motorcade neared the end of its course and as onlookers cheered, shots rang out. Kennedy, riding in an open car, was fatally wounded by an assassin's bullet. In the hours immediately after the murder, Lee Harvey Oswald was arrested for the assassination of the president. Two days later, as the president's body lay in state at the U.S. Capitol, Jack Ruby fatally shot Oswald in the basement of the Dallas police station as millions of Americans watched the latest bizarre event on television in dazed horror. In a great national outpouring of grief, Kennedy was laid to rest in Arlington National Cemetery on November 25, 1963.

Lacie A. Ballinger

See also: Cold War; Cuban Missile Crisis; Germany, Federal Republic of (FRG, West Germany); Johnson, Lyndon Baines; Soviet Union (USSR); Truman, Harry S.; Vietnam War; Weapons, Nuclear; World War II

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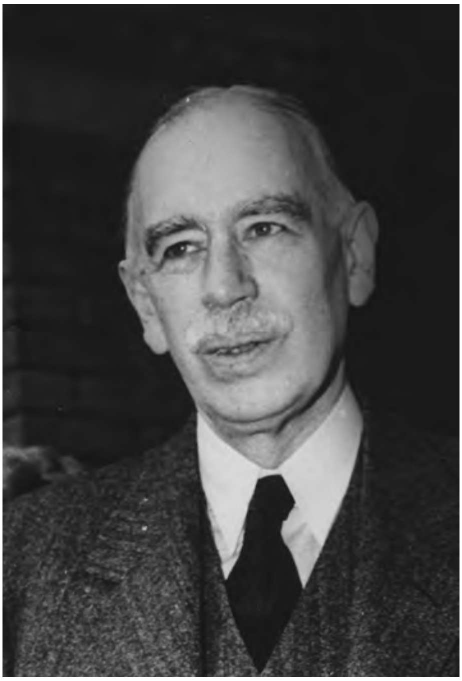
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KEYNESIAN ECONOMICS

A school of economic thinking pioneered by British economist John Maynard Keynes in the 1930s as a way to deal with the global Great Depression. Keynes first postulated his economic theory in *The General Theory of Employment, Interest, and Money,* published in 1936. The theory behind Keynesian economics holds that governments should intervene in free-market economies to stimulate macroeconomic conditions in periods of recession or depression. Three principal approaches were to be used to stabilize and/or stimulate the economy: interest rate manipulation, tax rate manipulation, and government spending on infrastructure and public projects. The last was particularly important in tough economic



The ideas of 20th-century British economist John Maynard Keynes still shape the economic policies of virtually every noncommunist nation. (Library of Congress)

times, Keynes pointed out, because it was his belief that the principal causes of the Great Depression were insufficient buying power, weak consumer spending, and a lack of business investment. Government spending would eventually cure the economy, he believed, because it would put people back to work, thereby empowering consumer spending.

Some Western governments did adopt portions of Keynesian economics in the late 1930s, but none, including that of the United States, embraced it fully enough to make a major difference in macroeconomic conditions. It took the massive military spending of World War II, in fact, to bring about full economic recovery, which in a way vindicated Keynesianism because military spending was essentially government spending on public (i.e., military) projects.

It is important to dispel some of the myths surrounding Keynesianism. First Keynes never suggested long-term deficit spending to stimulate the economy. Instead he envisioned an approach that was counter-cyclical—the government should increase spending in difficult economic times, when unemployment was high, and decrease spending when times were flush, allowing private spending to power the economy. He thus disagreed with government efforts to balance budgets in a bad economy, the result of which would be a worsening economy. Second he believed that governments should tame inflation in a booming economy by either increasing taxes to siphon off excess purchasing power, or by raising aggregate interest rates to discourage debt-driven spending and limit investment by private business. In some severe cases both approaches were to be applied simultaneously. What made Keynes' approach to economic policy making so influential was his virtual repudiation of classical economists' insistence on a *laissez-faire* ("hands off") approach to economic stabilization. In his mind governments were duty bound to stabilize their economies and smooth out the boom-bust business cycle by applying macroeconomic stimulation and inflation suppression as conditions warranted.

Clearly, Keynesianism came into its own as a result of World War II and the postwar economic boom that followed. Even many conservatives who eschewed government involvement in economic planning reluctantly acceded that Keynesian economics seemed to offer the postwar world a new way forward in the realm of economic policy making. In 1971 President Richard Nixon, a

Republican, admitted that "we are all Keynesians now."

Keynesian economic prescriptions were used to undergird large military budgets during the Cold War. Believing that long-term economic growth was a given—despite periodic recessions—policy makers decided that massive military spending could be attained without ruining the economy. This was possible because an expanding economy would be able to absorb high defense spending without piling up huge budget deficits or adversely affecting the economy. Such was the case in the United States, particularly during the Korean War (1950–1953). Although President Harry S. Truman disdained budget deficits, he acceded to them in limited fashion during the war, when defense spending exploded from $13.5 billion in 1950 to almost $60 billion by 1953. The government kept the economy on an even keel despite the defense outlays by maintaining full employment, increasing taxes, and exercising a tight-fisted monetary policy. Cyclical budget deficits were offset by aggregate economic growth, and the government could provide both "guns and butter" simultaneously. When defense expenditures went down for several years under President Dwight D. Eisenhower, military Keynesianism seemed to have again proven itself, as the economy suffered two recessions between 1953 and 1961, which Keynes would have predicted.

Keynesianism was fully embraced during the Vietnam War, when the Lyndon Johnson administration attempted to wage a major war and institute a wide-ranging social welfare agenda simultaneously. This prescription worked for a while, but Keynesianism was never meant to be applied fully, year after year, and budget deficits were never meant to accrue for more than a few years at a time. By the early 1970s the limits of Keynesianism had been stretched, and the oil shock of 1973 and 1974 precipitated a decade-long economic downturn. By the mid-1970s Keynesianism had been largely repudiated. Contrary to the assumptions upon which Keynesianism was based, high inflation occurred simultaneously with high unemployment, and stagnant or negative economic growth was combined with rapidly-accelerating prices.

In the 1980s the Ronald Reagan administration spurned Keynesianism's demand-side prescriptions for supply-side prescriptions and deregulation while also engaging in a significant defense build up. This resulted in huge, systemic budget deficits that ultimately over-burdened the economy. Keynesianism recently made a comeback, as the Barack Obama administration attempted to mitigate the deep recession that began in late 2007 with massive government spending.

Paul G. Pierpaoli Jr.

See also: Eisenhower, Dwight David; Johnson, Lyndon Baines; Korean War; Nixon, Richard Milhous; Reagan, Ronald Wilson; Truman, Harry S.; Vietnam War; World War II

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KOREAN WAR (1950–1953)

The Korean War was a watershed conflict within the Cold War. The first shooting war of the Cold War, it was also the first limited war of the nuclear age. Korea was divided in half after World War II. Wartime agreements called for the United States to temporarily occupy southern Korea up to the 38th Parallel, while the Soviet Union did the same north of that line. However, the Cold War brought the permanent division of Korea into two states.

Efforts to establish a unified Korea failed, and in September 1947 the United States referred the issue to the United Nations (UN), which called for a unified Korean government and the withdrawal of occupation forces. In January 1948 Soviet authorities refused to permit a UN commission to oversee elections in northern Korea, but elections for an assembly proceeded in southern Korea that spring. By August 1948 the Republic of Korea (ROK, South Korea) had officially formed with its capital at Seoul and was headed by 70-year-old Syngman Rhee, a staunch conservative. In September 1948 the communists formed the Democratic People's Republic of Korea (DPRK, North Korea) with its capital at Pyongyang and led by veteran communist Kim Il Sung.

Both Korean governments claimed authority over the entire peninsula, but in December 1948 the UN General Assembly endorsed South Korea as the only lawfully elected government. That same month the USSR announced that it had withdrawn its forces from North Korea. The United States withdrew all its troops from South Korea by June 1949.

Beginning in May 1948, sporadic fighting began along the 38th Parallel. Washington, fearful that the United States might be drawn into a civil war, purposely distanced itself from these clashes. President Harry S. Truman announced that fighting in Korea would not automatically lead to U.S. military intervention. In January 1950, Secretary of State Dean Acheson excluded Korea from the U.S. strategic Asian defensive perimeter. The Joint Chiefs of Staff (JCS) agreed with this, as did U.S. Far Eastern commander General of the Army Douglas MacArthur. Such pronouncements may have encouraged Kim to believe that the United States would not fight for Korea.

For many years North Korea, the USSR, and the People's Republic of China (PRC) maintained that the Korean War began with a South Korean attack on North Korea. This was propaganda. Beginning in late 1949 North Korea prepared for full-scale war. Its Korean People's Army (KPA) was well armed with Soviet arms, including much modern offensive weaponry and about 180 new aircraft. The KPA numbered about 135,000 men in 10 divisions.

South Korea's military situation was far different. The Republic of Korea Army (ROKA) lacked equipment and trained leaders because of Washington's unwillingness to fight in Korea and because the meager U.S. defense budget would not allow it. ROKA training was incomplete and lacked offensive artillery, tanks, and antitank weapons. South Korea had no air force apart from trainers and liaison aircraft. The South Korean military numbered 95,000 men in eight divisions, only four of which were at full strength.

Washington was aware of the North Korean military buildup but believed that the communist powers would not risk



American troops blast Yongdok, Korea, with a 105-mm howitzer on July 23, 1950. Under Lieutenant General James Van Fleet's request for augmented ammunition allocation, operators of 105-mm howitzers increased their daily artillery rounds from 50 to 300. (U.S. Army Center of Military History)

war. Limited war was still a foreign concept to U.S. planners. In the post-World War II era, the U.S. military in the theatre was also woefully unprepared and ill-equipped. The army numbered only nine divisions and 630,000 men in 1950.

Kim planned to use his military superiority to invade and quickly conquer South Korea. Moscow and Beijing were actively preparing for the invasion as early as the spring of 1949, and Soviet military advisors assisted in its planning. Stalin concluded that even if the United States decided to intervene, it would come too late.

Stalin pledged military assistance, but not direct Soviet military involvement. He also insisted that Kim secure PRC leader Mao Zedong's assent to the plans. In late 1949 Mao released the People's Liberation Army (PLA) 164th and 166th Divisions of Korean volunteers who had fought against the Japanese and in the Chinese Civil War, providing North Korea with 30,000 to 40,000 seasoned troops.

On June 25, 1950, KPA forces invaded South Korea. The UN Security Council called for an immediate cease-fire and the withdrawal of North Korean forces, a resolution that went unchallenged because of a Soviet UN boycott. On June 27 the Security Council asked UN member states to furnish assistance

to South Korea. President Harry S. Truman also extended U.S. air and naval operations to include North Korea and authorized U.S. Army troops to protect the port of Pusan. On General MacArthur's recommendation, President Truman committed U.S. Far Eastern ground forces to Korea on June 30.

The invasion caught both MacArthur and Washington by surprise. Yet U.S. intervention was almost certain, given the Truman Doctrine, domestic political fallout from the communist victory in China in 1949, and the belief that success in Korea would embolden the communists elsewhere. During the three-year conflict, no war was ever formally declared; Truman labeled it a "police action."

At the time of the invasion, the United States had four poorly trained and equipped divisions in Japan. By cannibalizing his 7th Infantry Division, MacArthur was able to dispatch the 24th and 25th Infantry Divisions and the 1st Cavalry Division to Korea within two weeks. Meanwhile, Seoul fell on June 28. Most of South Korea's equipment was lost when the bridges spanning the Han River were prematurely blown.

On July 5 the first American units battled the KPA at Osan. Expected to stop a KPA division, Task Force Smith consisted of only 540 men in two rifle companies and an artillery battery. The KPA, spearheaded by T-34 tanks, easily swept it aside.

At the request of the UN Security Council, the UN created a military command in Korea. Washington insisted on a U.S. commander, and on July 10 Truman appointed MacArthur to head the UN Command (UNC). Seventeen nations contributed military assistance, and at peak strength UNC forces numbered about 400,000 South Korean troops, 250,000 U.S. troops, and 35,000 troops from other nations.

U.S. forces were unprepared for the fighting. Difficult terrain, primitive logistics, poor communication, and refugees did as much to delay the North Korean offensive as did the defenders. In the chaotic atmosphere of the UNC retreat, both sides committed atrocities. North Korea committed far greater atrocities during its occupation of South Korea, however, slaying an estimated 26,000 political opponents. The KPA also executed American prisoners of war (POWs) in the fall of 1950.

By mid-July, UNC troops had been pushed back into the so-called Pusan Perimeter, an area of 30–50 miles around the port of Pusan on the southeastern coast of Korea. Here U.S. and ROK forces bought valuable time and ultimately held. This success was attributable to UNC artillery, control of the skies, and Eighth Army (EUSAK, Eighth U.S. Army in Korea) commander Lieutenant General Walton Walker's brilliant mobile defense. The KPA also failed to employ its early manpower advantage to mount simultaneous attacks along the entire perimeter.

Even as the battle for the Pusan Perimeter raged, MacArthur was planning an amphibious assault behind enemy lines. Confident that he could hold Pusan, MacArthur deliberately weakened EUSAK to build up an invasion force. He selected Inchon as the invasion site. As Korea's second largest port and being only 15 miles from Seoul, Inchon was close to the KPA's main supply line south. Seizing it would cut off KPA troops to the south. MacArthur also knew that he could deal North Korea a

major political blow if Seoul were promptly recaptured.

The Inchon landing was a risky venture, and few besides MacArthur favored it. Nevertheless, on September 15, Major General Edward Almond's X Corps of the 1st Marine Division and the 7th Infantry Division commenced the invasion. Supported by naval gunfire and air attacks, the Marines secured Inchon with relatively few casualties. UNC forces reentered Seoul on September 24.

At the same time, EUSAK broke out of the Pusan Perimeter and drove north, linking up with X Corps on September 26. Only one-quarter to one-third of the KPA escaped north of the 38th Parallel. Pyongyang ignored MacArthur's call for surrender, and on October 1 South Korean troops crossed into North Korea. On October 7 the UN General Assembly passed a resolution calling for a unified, independent, and democratic Korea, and two days later MacArthur ordered U.S. forces across the 38th Parallel. Pyongyang fell on October 19 as stunned KPA forces fled north.

MacArthur then unwisely divided his forces for the drive to the Yalu River. He ordered X Corps transported by sea around the Korean Peninsula to the east coast port of Wonsan. Almond would then clear northeastern Korea. EUSAK would remain on the west coast and drive into northwest Korea. The two commands would be separated by a gap of between 20 and 50 miles. MacArthur believed, falsely as it turned out, that the north-south Taebaek Mountain range would obviate large-scale communist operations there. The Eighth Army crossed the Chongchon River at Sinanju, and by November 1 elements of the 24th Division were only 18 miles from the Yalu. Several days earlier, a South Korean unit reached the Yalu, the only UNC unit to get there.

China now entered the war—unofficially. Alarmed over possible U.S. bases adjacent to Manchuria, Mao had issued warnings about potential Chinese military intervention. He believed that the United States would be unable to counter the Chinese numerical advantage and viewed American troops as soft and unused to night fighting. On October 2 Mao informed Stalin that China would enter the war.

Stalin agreed to move Soviet MiG-15 fighters already in China to the Korean border. In this position they could cover the Chinese military buildup and prevent U.S. air attacks on Manchuria. Soviet pilots began flying missions against UNC forces on November 1 and bore the brunt of the communists' air war. Stalin also ordered other Soviet air units to deploy to China, train Chinese pilots, and then turn over aircraft to them.

Stalin apparently had no intention of using his air units for anything other than defensive purposes, however. China later claimed that Stalin had promised complete air support for their ground forces, but this never materialized.

On October 25 Chinese troops entered the fighting in northwestern Korea, and Walker wisely brought the bulk of EUSAK back behind the Chongchon River. Positions then stabilized, and the Chinese offensive slackened. The Chinese also attacked in northeastern Korea before halting operations and breaking contact. On November 8, the first jet battle in history occurred when an American F-80 shot down a MiG-15 over Sinanju.

The initial Chinese incursion ended on November 7. In a meeting with President

Truman at Wake Island on October 15, General MacArthur had assured the president that the war was all but won, but that if the Chinese were to intervene, their forces would be slaughtered.

The initial Chinese intervention had consisted of 18 volunteer divisions. In early November, they moved an additional 12 divisions into Korea, totaling some 300,000 men. MacArthur responded by ordering the air force to destroy the bridges over the Yalu. Washington revoked the order, but MacArthur complained that this threatened his command. Washington gave in. On November 8, 79 B-29s and 300 fighter-bombers struck bridges and towns on either side of the Yalu. The bombing had little effect. At the time, most of the Chinese were in North Korea, and the Yalu was soon frozen.

Meanwhile Washington debated how to proceed. The political leadership and the JCS believed that Europe was the top priority. Washington decided that while Manchuria would remain off-limits, MacArthur could take other military steps that he deemed advisable, including resumption of the offensive. The Democrats were reluctant to show weakness in Korea, and the Republicans had gained seats in the November 1950 congressional elections.

While much was being made in the United States about the prohibitions of strikes on Manchuria, the communist side also exercised restraint. With the exception of a few ancient biplanes that sometimes bombed UNC positions at night, communist airpower was restricted to north of Pyongyang. No effort was made to strike Pusan, and UNC convoys traveled without fear of air attack. Nor did communist forces attempt to disrupt Allied sea communications.

MacArthur had made X Corps dependent logistically on EUSAK instead of Japan, and Walker insisted on delaying resumption of the offensive until he could build up supplies. Weather also played a factor, with temperatures already below zero. Finally Walker agreed to resume the offensive on November 24. To the east, X Corps was widely dispersed.

MacArthur seemed oblivious to any problems, seeing the advance as an occupation rather than an offensive. It went well on the first day, but on the night of November 25/26, the Chinese attacked the Eighth Army in force. The Americans held, but on December 26 the South Korean II Corps disintegrated, exposing EUSAK's right flank. The Chinese poured 18 divisions into the gap, endangering the whole Eighth Army. In a brilliant delaying action at Kunuri, the U.S. 2nd Division bought time for the other EUSAK divisions to recross the Chongchon. MacArthur now ordered a retirement just below the 38th Parallel to protect Seoul.

Washington directed MacArthur to pull X Corps out of northeastern Korea to prevent it from being flanked. Under heavy Chinese attack, X Corps withdrew to the east coast for seaborne evacuation along with the South Korean I Corps. X Corps was redeployed to Pusan by sea. On December 10, Wonsan was evacuated. At Hungnam through December 24, 105,000 officers and men were evacuated along with about 91,000 Korean refugees who did not want to remain in North Korea.

The Korean War had entered a new phase: in effect, the UNC was now fighting China. MacArthur refused to accept a limited war and publicized his views to his supporters in the United States. UNC

morale plummeted, especially with General Walker's death in a jeep accident on December 22. Not until Lieutenant General Matthew Ridgway arrived to replace Walker did the situation improve. In the United States, Truman found himself under heavy pressure from Republicans to pursue the war vigorously. But the administration reduced its goal in Korea to restoring the status quo ante bellum.

UNC forces again had to retreat when the Chinese launched a New Year's offensive, retaking Seoul on January 4. But the Chinese outran their supply lines, and Ridgway took the offensive. His methodical, limited advance was designed to inflict maximum punishment rather than to secure territory. Nonetheless, by the end of March UNC forces recaptured Seoul, and by the end of April they were again north of the 38th Parallel.

On April 11, 1951, President Truman relieved MacArthur of command, appointing Ridgway in his stead. Lieutenant General James Van Fleet took over EUSAK. Although widely unpopular at the time, MacArthur's removal was fully supported by the JCS, as MacArthur had publicly expressed his disdain of limited war.

On April 22 the Chinese counterattacked in Korea. Rather than expend his troops in a defensive stand, Van Fleet ordered a methodical withdrawal with maximum artillery and air strikes against communist forces. The Chinese pushed the UNC south of the 38th Parallel, but the offensive was halted by May 19.

UNC forces then counterpunched, and by the end of May the front had stabilized just above the 38th Parallel. The JCS generally limited EUSAK to that line, allowing only small local advances to gain more favorable terrain.

The war was now stalemated, and a diplomatic settlement seemed expedient. On June 23, 1951, Soviet UN representative Jacob Malik proposed a cease-fire. With the Chinese expressing interest, Truman authorized Ridgway to negotiate. Meetings began on July 10 at Kaesong, although hostilities would continue until an armistice was signed.

UNC operations from this point were essentially designed to minimize friendly casualties. Each side had built deep defensive lines that would be costly to break through. In August armistice talks broke down, and later that month the Battle of Bloody Ridge began, developing into the Battle of Heartbreak Ridge that lasted until mid-October. In late October negotiations resumed, this time at Panmunjom, although the fighting continued. Half of the war's casualties occurred during the period of armistice negotiations.

On November 12, 1951, Ridgway ordered Van Fleet to cease offensive operations. Fighting now devolved into raids, local attacks, patrols, and artillery fire. In February 1953 Van Fleet was succeeded as EUSAK commander by Lieutenant General Maxwell Taylor. Meanwhile UNC air operations intensified to choke off communist supply lines and reduce the likelihood of communist offensives.

In November 1952 General Dwight Eisenhower was elected president of the United States on a mandate to end the war. With U.S. casualties running 2,500 a month, the war had become a political liability. Eisenhower instructed the JCS to draw up plans to end the war militarily including the possible use of nuclear weapons, which was made known to the communist side. More important in ending the conflict, however, was Stalin's death on March 5, 1953. As the armistice

negotiations entered their final phase in May, the Chinese stepped up military action, initiating attacks in June and July to remove bulges in the line. UNC forces gave up some ground but inflicted heavy casualties.

The chief stumbling block to peace was the repatriation of POWs. The North Koreans had forced into their army many South Korean soldiers and civilians, and thousands of them had subsequently been captured by the UNC. If all KPA prisoners were repatriated, many South Koreans would be sent to North Korea. Also, many Chinese POWs sought refuge on Taiwan (Formosa) instead of returning to the PRC. Truman was determined that no prisoner be repatriated against his will. This stance prolonged the war, but some U.S. officials saw a moral and propaganda victory in the Chinese and North Korean defections. The communist side rejected the UNC position out of hand.

Following intense UNC air strikes on North Korean hydroelectric facilities and the capital of Pyongyang, the communists accepted a face-saving formula whereby a neutral commission would deal with prisoner repatriation. On July 27 an armistice was signed at Panmunjom, and the guns finally fell silent.

Of 132,000 North Korean and Chinese military POWs, fewer than 90,000 chose to return home. Twenty-two Americans held by the communists also elected not to return home. Of 10,218 Americans captured by the communists, only 3,746 returned. The remainder were murdered or died in captivity. American losses were 142,091, of whom 33,686 were killed in action. South Korea sustained 300,000 casualties, of whom 70,000 were killed in action. Other UNC casualties came to 17,260, of whom 3,194 were killed in action. North Korean casualties are estimated at 523,400 and Chinese losses at more than a million. Perhaps 3 million Korean civilians also died during the war.

The war devastated Korea and hardened the divisions between North and South. It was also a sobering experience for the United States. The conflict accelerated the racial integration of the armed forces, which in turn encouraged a much wider U.S. civil rights movement. After the war the U.S. military establishment remained strong, and defense spending remained much higher than it had been on the eve of the conflict. For America the Korean War institutionalized the Cold War national security state, and helped in the coalescence of the Military-Industrial Complex, an interlocking alliance among the U.S. military establishment, defense industries, and research-oriented universities that during the Cold War created a separate, stand-alone economy dedicated to national security imperatives and national defense.

The near quadrupling of U.S. defense spending during the Korean War was certainly the largest catalyst in the creation of the Military-Industrial Complex. Indeed the majority of Pentagon funds appropriated during the war did not go to the fighting in Korea, but instead was earmarked for long-term defense programs and the construction of a permanent industrial mobilization base that could swing into action at the first sign of crisis. The national security planners' decision to emphasize cutting-edge technology as a way to off-set Soviet numerical superiority also helped to solidify the Military-Industrial Complex, which would soon involve universities where hi-tech research would be conducted using government funds.

The decision to keep defense spending high, even after the Korean War ended, served as a de facto industrial policy for the United States, which proved to be a double-edged sword. On the one hand, defense industries created or augmented communities in the United States that employed a well-educated and highly-skilled labor force; many of them were in the so-called Sunbelt, stretching from Virginia to the north and east, through parts of the Deep South, into Texas, and west to California. Even during the Korean War, many of these areas received a disproportionate share of defense spending. The creation of a southern-tier Military-Industrial Complex resulted in a major population shift from the Northeast and Midwest to the Southeast and Southwest. This reordered the nation demographically as well as politically. On the other hand, this shifting of population and resources only sped up the decline of America's once-great industrial cities—from Chicago, to Pittsburgh, to Boston, and many places in between. These areas steadily lost population and employment, placing many of them in untenable financial straits by the early 1970s.

China gained greatly from the war in that it came to be regarded as the preponderant military power in Asia. This is ironic, because the Chinese Army in Korea was in many respects a primitive and inefficient force. Nonetheless, throughout the following decades exaggeration of Chinese military strength was woven into the fabric of American foreign policy, influencing subsequent U.S. policy in Vietnam.

The Korean War also effectively militarized the containment policy. Before the war, Marshall Plan aid had been almost entirely nonmilitary. U.S. aid now shifted heavily toward military rearmament. The war also marked a sustained militarization of American foreign policy, with the Vietnam War a logical consequence.

Additionally, the Korean War solidified the role of the United States as the world's policeman and strengthened the country's relationship with its West European allies and the North Atlantic Treaty Organization (NATO). The war facilitated the rearmament of the Federal Republic of Germany (FRG, West Germany). It also positively impacted Japan and was a major factor fueling that nation's economy.

No formal peace has ever been concluded in Korea. Technically, the two Koreas remain at war, and the 38th Parallel remains one of the Cold War's lone outposts.

Spencer C. Tucker

See also: Acheson, Dean Gooderham; China, People's Republic of (PRC); Cold War; Dulles, John Foster; Eisenhower, Dwight David; Joint Chiefs of Staff; Soviet Union (USSR); Truman, Harry S.

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L

LABOR MOVEMENTS

National and multinational workers' organizations, some of which were closely allied with either pro-Western or pro-Soviet political movements, while others eschewed direct political involvement altogether. The advent of the Cold War led to an ideological split of the international labor movement as well as the national and industry-based labor federations throughout the world. The communist movement saw labor unions as a means of disciplining employees within its own sphere of influence and winning over allies for the Soviet Union in the industrialized West and the developing world. The Western liberal, Christian, and social democratic movements allegedly championed labor unions that were not subjugated by individual governments or business interests. But this seemed to be mere rhetorical window dressing. In order to combat communism, Western labor organizations in Europe and especially in the United States often intervened in the developing world, promoting workers' movements that supported the interests of Western corporations and local power elites.

Divisions within the labor movement were rooted in fundamental conflicts that had developed prior to and immediately after World War I. The basic issues that split the world labor movement in that era included a debate as to whether or not labor unions should play an active role in politics, the appropriate relationship between union leaders and management/corporate elites, the role of colonialism in the developing world, and finally disputes over the ability of capitalist systems to reform themselves in order to better serve the interests of workers.

At the end of World War II, a spirit of international, antifascist solidarity led to a brief period of cooperation among the various branches of the worldwide labor movement. In 1945 the British Trades Union Congress (TUC), the French Confédération Générale du Travail (CGT), the American Congress of Industrial Organizations (CIO), and the Soviet All-Union Central Confederation of Trade



American Federation of Labor (AFL) President George Meany (left) and Congress of Industrial Organizations (CIO) President Walter Reuther (right) officially declare the AFL-CIO merger at a convention on December 5, 1955. The AFL-CIO is the largest labor organization in the United States today. (Bettmann/Corbis)

Unions (AUCCTU) joined ranks with most other labor organizations to found the World Federation of Trade Unions (WFTU). Because they rejected the inclusion of communist influences within the labor movement, the International Federation of Christian Trade Unions (IFCTU) and the American Federation of Labor (AFL) refused to join the world body.

Key developments during the first years of the Cold War, including negotiations involving the implementation of the 1947 Marshall Plan, the impending division of Germany, and the forced introduction of pro-Soviet people's republics in Central and East-Central Europe, resulted in the establishment of the International Confederation of Free Trade Unions (ICFTU) in 1949. Gradually most Western unions left the WFTU for the ICFTU. This international split ran parallel to the founding of vehemently anticommunist national labor federations, or the exclusion of communists from existing ones in France, Italy, Germany, the United States, and many other countries throughout the world. The breakup of the international labor movement was largely orchestrated by American unions, such as the AFL and the CIO, with the support of most social democratic and Christian democratic unions in Europe. It was also hastened by U.S. government funding and involvement by the U.S.

Central Intelligence Agency (CIA) and Marshall Plan authorities.

The impetus for the American-led bolt from the international labor movement was not merely the growing tensions and acrimony of the burgeoning Cold War abroad. It was also a result of intense internal pressures within the United States, many of which were politically motivated, to crack down on communist subversion within the country. This can be most famously seen in the red-baiting of the late 1940s and the rabid politics of anticommunism that became a crucial component of the American political dialogue associated with McCarthyism in the early 1950s.

During the 1970s and 1980s, communist labor unions throughout the world began to distance themselves from the Soviet-dominated WFTU. Especially within the European Economic Community (EEC), today known as the European Union (EU), the Eurocommunist unions attempted to better coordinate their activities with the European Trade Union Confederation (ETUC), thus establishing more unified labor relations within the expanding common market. At the time, the ETUC united the liberal, Christian, and social democratic labor movements.

In the developing world, the split in the international labor movement had palpable and long-lasting negative consequences. As the post-World War II decolonialization process began in earnest, European workers in Africa and Asia feared that their privileges would only be protected if popular national liberation movements were defeated. Furthermore, many developing-world unions were strongly influenced by Marxist leaders, causing American labor leaders to fear that they would help move newly independent countries into the Soviet sphere.

Ironically, the progovernment and probusiness labor unions on the ideological Right were considered to be reliable developing-world partners for the West and received generous funding from both the United States and Western Europe. During the two decades prior to the end of the Cold War, many autocratic regimes in Latin America, East Asia, and Africa found that those unions, which had been advised and financed by the Western labor movement, were some of their best allies in an otherwise rebellious national workforce.

Eugene Sensenig-Dabbous

See also: Central Intelligence Agency (CIA); France; German Democratic Republic (GDR, East Germany); Germany, Federal Republic of (FRG, West Germany); Soviet Union (USSR); United Kingdom

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LAWRENCE BERKELEY NATIONAL LABORATORY (LBNL)

Founded in Berkeley, California, in 1931, the Lawrence Berkeley National Laboratory (LBNL) is a multidisciplinary national laboratory that conducts



Inspecting coin cells cycling in an environmental chamber of Lawrence Berkeley National Laboratory's Environmental Energy Technologies Division (EETD) Battery Research Lab. (Lawrence Berkeley National Laboratory/Roy Kaltschmidt)

unclassified research for the U.S. government. The LBNL is a member of the national laboratory system supported by the U.S. Department of Energy's Office of Science and is managed and owned by the University of California. The laboratory has 17 divisions hosted under 4 departments: Computing Sciences, General Sciences, Life and Environmental Sciences, and Physical Sciences. Key research efforts include, but are not limited to, nanoscience, new energy systems (including fusion), cosmology, physics, and genomics. The LBNL currently employs a staff of 4,300 scientists, engineers, graduate students, and administrators. The laboratory also hosts a number of National User Facilities. LBNL boasts 11 Nobel Laureates and the discovery of 14 new elements over its 77-year lifespan. The laboratory's 2008 budget was $600 million. LBNL's current director is Steven Chu.

Erik Henderson

See also: Research and Development/Think Tanks/University Research

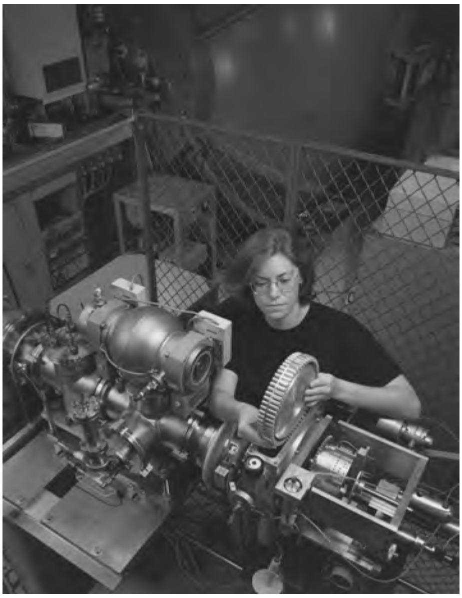
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LAWRENCE LIVERMORE NATIONAL LABORATORY

Founded in Livermore, California, in 1952, the Lawrence Livermore National Laboratory (LLNL) is a top-tier applied science laboratory that is responsible for ensuring U.S. nuclear weapons' safety, security, and reliability. The LLNL is one of three national laboratories belonging to the National Nuclear Security Administration (NNSA). As an NNSA member, the laboratory focuses upon supporting the nation's counterproliferation efforts and enhancing the Department of Homeland Security's ability to detect and deter terrorists from employing those weapons within the continental United States. Additional responsibilities include design and support of the U.S. Navy's nuclear power plants, as well as supporting U.S. leadership in science and technology. As of May 2008, the LLNL employs a staff of 8,000 scientists, engineers, and administrators. Its $1.6 billion budget is drawn from the NNSA Offices of Defense Programs and Defense Nuclear Nonprolifer-



Analyzing samples at Lawrence Livermore National Laboratory's Center for Accelerator Mass Spectrometry (CAMS). CAMS develops and operates accelerator based isotopic abundance measurements and ion-beam analytical techniques and instrumentation for applications in a wide range of research areas. (Lawrence Livermore National Laboratory)

ation, the Department of Homeland Security, various Department of Defense sponsors, and other federal agencies.

Erik Henderson

See also: Department of Defense; United States Navy; Weapons, Nuclear; World War II

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https://www.llnl.gov.

LOCKHEED

One of the most interesting and long-lasting relationships in the Military-Industrial Complex has been with the Lockheed Corporation (now Lockheed Martin). Incorporated in 1926, Lockheed established itself as an important American aircraft manufacturer with the introduction of civilian aircraft such as the *Electra.* As war approached, Lockheed won the contract for a heavy fighter, the twin-engine Lockheed P-38 *Lightning.* Production began in 1937. During the war Lockheed built aircraft under license for the U.S. Army Air Forces (AAF) and U.S. Navy, and developed new models under wartime contracts including the Navy's P2V *Neptune* (introduced in 1947). But Lockheed's credentials were established as a Research and Development organization and became known for their high technology and very secret designs. Kelly Johnson, Lockheed's premier designer already known for the P-38, established the ultra-secret "Skunk Works," a design lab for military aircraft. His follow on P-80 *Shooting Star* became America's first production jet fighter. Johnson and Lockheed continued to develop excellent designs for the new U.S. Air Force including the U-2 spy plane and eventually the super-fast SR-71 *Blackbird,* which carried out reconnaissance missions over the Soviet Union. Lockheed continued development of both civilian and military aviation airframes into the Cold War, including the L-1011 *Tristar* and further military fighters and transports. Military aircraft included the F-104 *Starfighter* and Lockheed C-130 multi-mission transport aircraft. Lockheed expanded its interests with missiles, space components, and avionics technology.

Into the Cold War, Lockheed continued to produce high-technology weapons systems for the U.S. Military-Industrial Complex. They continue to produce next generation fighters and



Lockheed P38 Lightning (United States). (U.S. Air Force)

transports for the U.S. Air Force, contributing the C-141 *Starlifter* and C-5 *Galaxy* as well as the F-117 *Stealth Fighter,* another design from the Skunk Works. Lockheed and Martin Marietta merged in 1995 and immediately became the largest defense producer for the U.S. government. In addition to production of space, nuclear, and missile technology, the newly named Lockheed Martin successfully competed for the F-22 *Raptor* design—the most expensive aircraft of the time at $140 million each, with 183 on order. In 1999 Lockheed Martin won the contract for the fifth-generation fighter, the JSF-35 *Joint Strike Fighter,* which will be a common airframe for the U.S. Air Force, U.S. Navy, and U.S. Marine Corps, with minor variation for each service.

Today Lockheed Martin is the largest defense contractor in the United States. In addition to advanced aircraft development, Lockheed Martin also produces missiles, radar systems, and additional equipment for the U.S. military and space programs.

S. Mike Pavelec

See also: Arms Manufacturers/Defense Industry Contractors; Research and Development/Think Tanks/University Research; United States Air Force; United States Marine Corps United States Navy; Weapons, Air; Weapons, Space

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LOS ALAMOS, NEW MEXICO

In an effort to concentrate technical personnel in a safe and secure zone during the war, the U.S. Army gathered a Special Engineer Detachment (SED) at Los Alamos, New Mexico, in 1943 to work on the highly secret Manhattan Project. Scientists, engineers, and technicians were assembled to create the world's first atomic bombs. Funded by the U.S. government for military purposes, and combining the best minds of the Allied effort, the atomic bombs "Fat Man" and "Little Boy" were constructed. Following the successful detonation of the atom bombs and at the end of the war, the Labs at Los Alamos continued as work spaces for future military applications. Today the Los Alamos National Laboratory thrives as a repository for engineers and physicists who continue to provide research and applications for the U.S. military.

S. Mike Pavelec

See also: Manhattan Project; Weapons, Nuclear; World War II

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M

MANHATTAN PROJECT

Crash program led by the United States to develop an atomic bomb. The discovery of fission in uranium by Otto Hahn and Fritz Strassman in 1938 led physicists such as Enrico Fermi and Leo Szilard to suggest the feasibility of sustained nuclear chain reactions, promising a quantum leap in destructive power if harnessed in "atomic" bombs. Szilard approached Albert Einstein in 1939 with the idea of writing a letter to President Franklin D. Roosevelt warning of this possibility and of German research into nuclear fission. Szilard and Einstein's letter prompted Roosevelt to appoint the Uranium Committee to explore the feasibility of developing an atomic bomb. In the spring of 1940 a British memorandum by Rudolf Peierls and Otto Frisch, titled "On the Construction of a 'Superbomb'; Based on a Nuclear Chain Reaction in Uranium," concluded that "a moderate amount of Uranium 235 would indeed constitute an extremely efficient explosive." On the U.S. entry into the war in December 1941, British and American cooperation increased.

Recognizing that a project to build atomic bombs would require immense industrial resources, the Americans took the lead. They organized the MANHATTAN Engineer District of the Army Corps of Engineers in 1942. Vannevar Bush, head of the Office of Scientific Research and Development (OSRD), appointed Brigadier General Leslie Richard Groves, who had overseen construction of the Pentagon, to direct the MANHATTAN Project.

Sustaining and controlling a nuclear chain reaction was the first crucial technical step. Fermi's team accomplished this at the Metallurgical Laboratory at the University of Chicago on December 2, 1942 (the actual nuclear pile occupied a squash court at Stagg Field). Fermi thus proved that a larger reactor could produce enough of a highly fissionable isotope of plutonium (239Pu) to make a bomb. Work began on a reactor complex at Hanford, Washington, to produce the required plutonium.

The uranium 235 (235U) isotope mentioned in the Frisch-Peierls memorandum also held considerable promise as bomb material and was pursued simultaneously. Separation of 235U from 238U was accomplished at Oak Ridge, Tennessee, by gaseous diffusion and electromagnetic separation in an immense plant that covered 43 acres and employed 31,000 people. As work progressed on 239Pu and 235U production, Groves recognized that a central laboratory was needed to design, develop, and assemble the bombs. He chose Julius Robert Oppenheimer to direct what became known as Los Alamos Laboratory. Work began there in the spring of 1943.

Intense secrecy and compartmentalization characterized the MANHATTAN Project, but at Los Alamos, Oppenheimer fostered a spirit of collaboration, camaraderie, and open communication. Design and assembly of the 235U bomb was straightforward in that a gun-type method could be used to initiate the explosion. The time-consuming process of separating 235U was the chief difficulty, but Oak Ridge eventually succeeded in isolating enough 235U for Oppenheimer's team to assemble "Little Boy," the bomb used against Hiroshima on August 6, 1945.

By mid-1945 Hanford had produced enough 239Pu for three bombs, but they required a complex implosion device with multiple detonators firing simultaneously to create compression waves that would initiate a core explosion. In 1944, to tackle the implosion design challenge, Oppenheimer called on George Kistiakowsky to head the effort to produce the necessary shaped charges. His design was successfully tested at Alamogordo, New Mexico, on July 16, 1945, and used in "Fat Man," the plutonium bomb that devastated Nagasaki on August 9, 1945. At a cost of $2 billion, MANHATTAN Project scientists and engineers had achieved the seemingly impossible—producing three atomic devices by August 1945 that fundamentally changed the nature of warfare, vastly enlarging humanity's capacity for destruction.



The "Trinity" explosion on July 16, 1945, the first atomic bomb test, was the result of the Manhattan Project's work, which was conducted primarily at Los Alamos National Laboratory in New Mexico. (National Archives)

Debates about whether the atomic bomb attacks were needed to end the war continue to rage. Certainly, even after it became apparent by 1944 that Germany had abandoned its effort to produce atomic bombs, nearly all members of the MANHATTAN Project team continued to press ahead. The ultimate decision to use

the bombs rested with President Harry S. Truman, who never doubted that they were a major factor in Japan's decision to surrender, thereby saving tens of thousands of Allied lives.

The project's technical success strengthened an emerging Military-Industrial Complex in the United States and led to the formation of the Atomic Energy Commission (AEC) in 1946. Further research into nuclear weapons production led to the successful test of a hydrogen bomb in 1952, ushering in a new and frightening thermonuclear age.

William J. Astore

See also: Bush, Vannevar; Los Alamos, New Mexico; Oak Ridge, Tennessee; Roosevelt, Franklin Delano; Truman, Harry S.; Weapons, Nuclear; World War II

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MARSHALL, GEORGE CATLETT (1880–1959)

U.S. Army general, chief of staff of the army (1939–1945), secretary of state (1947–1949), and secretary of defense (1950–1951). Born in Uniontown, Pennsylvania, on December 31, 1880, George Marshall graduated from the Virginia Military Institute in 1901 and was commissioned a second lieutenant of infantry the following year. His assignment to the Philippines was followed by postings within the United States, including from 1906 to 1910 at Fort Leavenworth Infantry and Cavalry School, first as a student and then as an instructor. From 1913 to 1916 he served once more in the Philippines.

After American intervention in World War I, in June 1917 Marshall went to France as a training officer to the 1st Division. Promoted to lieutenant colonel in 1918, he became the First Army's chief of operations, winning general admiration for his logistical skills in arranging for the movement of hundreds of thousands of troops across the battlefront. After working on occupation plans for Germany, in spring 1919 he became aide to General John J. Pershing, then army chief of staff.

Between the wars Marshall spent three years in Tianjin, China, with the 15th Infantry Regiment and five years as assistant commandant in charge of instruction at the Infantry School in Fort Benning, Georgia. He won promotion to colonel in 1932, holding assorted commands in the continental United States.

In 1938 Marshall became head of the War Plans Division in Washington, in quick succession rising to deputy chief of staff with promotion to major general and then, in Spring 1939, chief of staff of the army. He was promoted to temporary general that September. With war raging in Europe, Marshall threw himself into



General George C. Marshall is pictured with members of his staff in his office at the War Department. Marshall is seated, fifth from the left. (Bettmann/Corbis)

rebuilding the American defense establishment. Increasingly assisted by pro-Allied civilians such as Secretary of War Henry L. Stimson, Marshall instituted and lobbied for programs to recruit and train new troops; expedite munitions production; assist Great Britain, China, and the Soviet Union to resist their enemies; and coordinate British and American strategy. He presided over an increase in the U.S. Army from a mere 190,000 men in September 1939 to more than 8.157 million men and women by April 1945. His personal knowledge of American officers, many of whom he had trained, helped him select numerous commanders for both the European and Pacific theaters.

Marshall was a strong supporter of opening a second front in Europe, a campaign ultimately deferred until June 1944. Between 1941 and 1945 he attended all the major wartime strategic conferences, including those at Placentia Bay, Washington, Quebec, Cairo, Tehran, Malta, Yalta, and Potsdam. President Franklin D. Roosevelt and his successor President Harry S. Truman relied heavily on Marshall's advice. Marshall's greatest disappointment was perhaps that he never received field command of the European invasion forces. Roosevelt gave him that choice but also told him that he would prefer that Marshall remain chief of staff, a post he continued to hold throughout the war. He was not only highly effective in supervising the massive American war effort but also enjoyed excellent relationships with key senators and congressmen, who

almost without exception admired and respected his professional abilities and personal integrity.

In 1945 Marshall participated in discussions as to whether to drop the newly developed atomic bomb. Eager to end the Pacific war expeditiously, he supported its use. When the war ended, Marshall publicly advocated that in the interests of national security, his country needed to maintain a far larger, more professional, and better equipped permanent defense establishment than in the past. He clearly anticipated that the United States would in the future play a far greater international role and might have to do so almost anywhere in the world.

Marshall retired in November 1945, whereupon President Truman promptly dispatched him to China, where he spent a year unsuccessfully attempting to mediate the civil war between the Nationalist government and communist rebels. In January 1947 Marshall became secretary of state. Soviet-American relations were then on a steep downward trajectory. Shortly afterward, in February 1947, Truman delivered his famous Truman Doctrine speech, calling for aid to help Greece and Turkey resist internal and external communist threats and placing this in the context of an all-embracing U.S. commitment to oppose communism throughout the world, the expression of what would soon become known as the strategy of containment.

Marshall and his aides, including Undersecretaries of State Dean G. Acheson, William L. Clayton, and Robert A. Lovett, developed and lobbied Congress for policies that would put this strategy into practice. Marshall's most visible accomplishments were the European Recovery Program (Marshall Plan), a coordinated $13 billion five-year strategy to rehabilitate the economies of Western Europe that he announced in June 1947, and American membership in the North Atlantic Treaty Organization (NATO), the first permanent security pact the United States had ever entered.

Marshall left office in January 1949, shortly afterward heading the American Red Cross. At the outbreak of the Korean War in June 1950, Truman persuaded him to accept the position of secretary of defense, in which capacity Marshall again built up American manpower and war production and pushed for selective service legislation. He also strongly supported Truman's dismissal for insubordination of General Douglas MacArthur, commander of United Nations (UN) forces in Korea—a decision that later exposed Marshall to vehement and politically motivated accusations of procommunist sympathies from Senator Joseph R. McCarthy and his followers, as did his failure to preserve China from a communist takeover in 1949.

Marshall again left office in September 1951, succeeded as secretary of defense by Robert A. Lovett, his protégé and disciple. In December 1953 Marshall's efforts for European recovery won him the Nobel Peace Prize. He died at Walter Reed Hospital in Washington, D.C., on October 16, 1959. An architect of the American century of U.S. international dominance, Marshall epitomized the intimate links between his country's diplomatic and military policies.

Priscilla Roberts

See also: Acheson, Dean Gooderham; China, People's Republic of (PRC); Korean War; North Atlantic Treaty Organization (NATO); Roosevelt, Franklin Delano; Soviet Union

(USSR); Truman, Harry S.; United Kingdom; World War II

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MASSIVE RETALIATION

A U.S. defense doctrine first conceived in 1953 and publicly enunciated by Secretary of State John Foster Dulles in January 1954. Massive Retaliation was predicated upon the predominance of U.S. nuclear forces in the 1950s. Under Massive Retaliation, Dwight D. Eisenhower put the adversaries of the United States—principally the Soviet Union—on notice that any offensive provocation—be it conventional or nuclear—would be met with swift, overwhelming nuclear retaliation. The magnitude of the nuclear response would be sufficient to cripple or destroy an aggressor's military and civilian infrastructure and would by inference involve the deaths of millions of people.

Massive Retaliation was meant as a form of ultimate deterrence, which meant that in theory it was designed to prevent an aggressor from launching any sort of military offensive, nuclear or conventional. In the 1960s as Soviet nuclear capabilities reached parity with those of the United States, Massive Retaliation was replaced—at least in part—by Mutual Assured Destruction (MAD). It promised a crushing retaliatory nuclear blow to any nation that launched a preemptive nuclear strike against the United States.

The genesis of the Massive Retaliation came in the 1953 Solarium Project, so named because many of its meetings were convened in the White House solarium room. In the spring of 1953 while the Korean War still raged, President Eisenhower decided to gather a group of senior military and civilian strategists charged with advising him on the best course of action in prosecuting the Cold War. Eisenhower was chagrined with the stalemate in Korea and worried that the nation's massive military spending would have a deleterious effect on the American political economy. Divided into three "teams," the advisors were given six weeks to analyze and defend a specific Cold War strategy. One team was to study a strategy that would have the United States maintain just enough military might to defend against aggression while simultaneously helping its allies to rearm and avoid a general war. Another team was to analyze and defend a position in which the United States would draw a line in Europe which, if crossed by the Soviets in any way, would trigger a war with the USSR. The third team held the position that the United States should aggressively roll back the Soviet Union and attempt to liberate its

satellites. In the end when Eisenhower met with the teams, he stated his preference for the first option, noting that the second two were too bellicose and expensive. Massive Retaliation would thus be a cost-effective way to defend the United States and its allies.

Project Solarium and Massive Retaliation helped to inform the Eisenhower administration's New Look defense posture, which eschewed the buildup of large conventional forces in favor of more cost-effective nuclear forces. In a speech on January 12, 1954, Secretary of State Dulles first enunciated the concept of Massive Retaliation, stating that "local defense must be reinforced by the further deterrent of massive retaliatory power." Herein lay the coining of the term "Massive Retaliation." In addition to Eisenhower's great concern over the size of the defense budget, he was also worried about the great disparity between the number of Soviet troops in Eastern Europe and the number of Allied troops in Western Europe. This disparity gave the Soviet Union a considerable advantage should it decide to launch a military offensive into West Germany and Western Europe. Massive Retaliation, it was hoped, would prevent such a scenario without the need for a large number of conventional (and more costly) forces.

In fact what Eisenhower did was merely to codify in a more systematic fashion what the Harry S. Truman administration had already begun to emphasize: air power and nuclear weapons. Indeed, for Fiscal Year 1953, the last year of the Truman defense budgets, the U.S. Air Force was allotted nearly one-half of the total $46.6 billion. Of the $21.1 billion allocated to the Air Force, 60 percent was dedicated to the development and procurement of more aircraft, including guided missiles capable of delivering nuclear payloads. In a significant sense, there was in reality nothing "new" to Eisenhower's New Look defense doctrine, including Massive Retaliation.

Critics—both military and civilian—of Eisenhower and Dulles decried what they saw as an overreliance on nuclear weapons, which left the United States two choices in case of a Soviet military adventure: capitulation or all-out war. In the end the alleged cost-effectiveness of Massive Retaliation was illusory. In 1958 the U.S. Army was still 50 percent larger than it was at the start of the Korean War, and the inexorable march toward technical supremacy ensured that new aircraft and missiles would be ever more costly. When the John F. Kennedy administration was inaugurated in 1961, it made a conscious decision to deemphasize Massive Retaliation, adopting Flexible Response as a better way to respond to regional threats and small-scale military offensives.

Paul G. Pierpaoli Jr.

See also: Dulles, John Foster; Eisenhower, Dwight David; New Look Defense Policy; Office of Defense Mobilization (ODM)

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McDONNELL-DOUGLAS

McDonnell and Douglas were two aircraft manufacturers during World War II that provided airframes to the U.S. military. Both contributed to the war effort, but were short of work with the end of hostilities. In the immediate postwar period, both were working on aircraft and missile technology for the government. In 1967 they merged to become McDonnell-Douglas and produced fighter aircraft (such as the F-4 *Phantom II* and later the F-15 *Eagle*) for combat as well as missile technology and civilian aircraft (such as the "MD" series commercial airliners). McDonnell-Douglas spun off a helicopter division in 1984 (with the AH-64 *Apache*) and continued to provide equipment and parts until their merger with Boeing in 1997.

S. Mike Pavelec

See also: Arms Manufacturers/Defense Industry Contractors; United States Air Force; Weapons, Air

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McNAMARA, ROBERT STRANGE (1916–)

U.S. secretary of defense. Born in San Francisco, California, on June 9, 1916, Robert McNamara was an Army Air Corps officer in World War II when he used statistical techniques acquired at the Harvard Business School to improve the logistics, planning, and analysis of



F-4 Phantom II fighter aircraft fly in formation during a heritage flight in Florida. (U.S. Air Force)

strategic bombing raids over Europe and Japan. Joining the Ford Motor Company after the war, in November 1960 he was appointed president but left almost immediately when President John F. Kennedy recruited him as secretary of defense.

McNamara moved at once to enlarge his personal staff and centralize decision making in the secretary's office, developing and employing a planning-programming-budgeting system (PPBS) in efforts to enhance cost-effectiveness by eliminating duplication, waste, and overlapping programs among the three services and subjecting proposed weapons systems to close cost-benefit analysis. These and other efficiency measures, including proposals to close unneeded military bases and consolidate the National Guard and Army Reserves into one system, provoked fierce opposition from many military men and from powerful congressional and civilian lobbies.



Secretary of Defense Robert McNamara works at his desk in the Pentagon in 1961. Originally focused on reorganizing the Pentagon's budgetary and bureaucratic processes, McNamara is most remembered for his role in major foreign policy decisions. (Department of Defense)

McNamara supported the 1963 Partial Nuclear Test Ban Treaty, which he hoped would facilitate Soviet-American arms limitation talks, even as he supported developing a U.S. second-strike capability, the ability to retaliate ferociously even after absorbing a massive nuclear attack. He also broke with President Dwight D. Eisenhower's emphasis on threatening massive retaliation in all crises to support expanding the military by 300,000 men to develop flexible-response capabilities, a mobile striking force prepared for conventional or guerrilla warfare. Defense Department budgets rose from $45.9 billion in 1960 to $53.6 billion in 1964. Another reason for this surge was McNamara's early decision to increase land-based U.S. intercontinental ballistic missiles (ICBMs) to 1,000, a move that may have triggered a similar Soviet buildup and arms race. He publicly defended the nuclear strategy of mutual assured destruction (MAD), arguing that it served as a deterrent to nuclear war.

McNamara made an early mistake in endorsing the disastrous April 1961 Bay of Pigs invasion of Cuba. During the October 1962 Cuban Missile Crisis, however, he was generally credited with devising the relatively moderate naval quarantine response strategy that Kennedy decided to follow. During the Kennedy presidency McNamara's reputation soared, only to fall dramatically and permanently under Kennedy's successor, Lyndon B. Johnson.

Growing American involvement in the Republic of Vietnam (ROV, South

Vietnam), which McNamara endorsed, undercut his efforts at rationalization. Military intellectuals later criticized McNamara's decision to permit the demands of the Vietnam War to denude American North Atlantic Treaty Organization (NATO) forces. Under Kennedy, McNamara backed moderate increases in American advisors and military aid programs to Vietnam. Despite his deepening pessimism and personal doubts, however, to Congress, McNamara presented an unequivocal picture of unprovoked North Vietnamese aggression. In July 1965 McNamara endorsed requests by General William C. Westmoreland for an increase of 185,000 American troops in Vietnam, but President Johnson rejected as politically unacceptable his accompanying recommendations to call up reserve forces and increase taxes for the war.

McNamara always doubted both the effectiveness and the morality of the heavy U.S. bombing raids, but Johnson and the military chiefs frequently overruled him. By 1966 McNamara had become increasingly pessimistic over the war's outcome, especially when antiwar protests intensified and he became a prime target for ferocious criticism, although as late as mid-1967 he appeared on occasion to believe that the war could be won. Within the Johnson administration, McNamara's growing emphasis upon seeking a negotiated settlement in the war which he still publicly defended decreased his influence, and in late 1967 Johnson rejected his recommendations to freeze U.S. troop levels, cease bombing North Vietnam, and transfer ground combat duties largely to the South Vietnamese Army. McNamara announced his impending resignation in November 1967, leaving three months later to become president of the World Bank.

McNamara remained at the World Bank until 1982, dramatically expanding its lending and development programs. During Ronald Reagan's presidency, McNamara was one of several leading American diplomats who openly sought a pledge by the United States that it would never be the first state to use nuclear weapons. In 1986 he published proposals designed to reduce the risk of conflict. In 1995 he finally published his memoirs and concurrently became heavily involved in continuing efforts by Vietnamese and Western scholars and officials to attain greater understanding of each other's position in the Vietnam conflict. In 2003 he cooperated in producing a documentary, *The Fog of War,* on his experiences from World War II onward.

McNamara remains controversial. His persistent refusal to characterize the American decision to intervene in Vietnam as inherently immoral and unjustified, as opposed to mistaken and unwise, still generates passionate and often highly personal criticism from former American opponents of the war.

Priscilla Roberts

See also: Cuban Missile Crisis; Johnson, Lyndon Baines; Kennedy, John Fitzgerald; Mutual Assured Destruction; North Atlantic Treaty Organization (NATO); Reagan, Ronald Wilson; Vietnam War

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MEDIA

The relationship between the news media and the military has always been combative. Until the 20th century, newspapers usually catered to certain sections of the public. These divisions were usually political or ethnic in nature. As a result the coverage of war correspondents often reflected the political sentiments of the day.

The nature of communication technologies initially limited the conflict between the military and the news media. Although there were enormous political divisions over the War of 1812, officers had little to worry about as far as information security since war correspondents were unable to get their dispatches published until weeks later. The development of new technologies and professional norms in journalism during the 1840s had the potential to change this dynamic. These new technologies included high-speed printing presses, which made it easier for publishers to produce newspapers more rapidly and cheaply than before, and the telegraph, which made it much easier for reporters to get timely information back to their home publications. At the same time news gathering rather then the editorial page became the focus of greater reader interest. These changes, however, had little impact on the relationship between the military and the media. There was not much of a telegraph wire network in the southern United States during the War with Mexico, which more than any other factor limited the amount of news coverage about this conflict.

It was during the U.S. Civil War that profound issues of civil-military relations developed. Given the domestic nature of this conflict and its highly political context, there was enormous public interest in its conduct.

There were also legitimate security issues, with both belligerents having a number of sympathizers behind enemy lines. Both Robert E. Lee and William T. Sherman claimed that they learned valuable information about troop movements from reading newspaper accounts. While some individuals like George A. Custer were quite good at courting media attention, others like Sherman wanted little to do with journalists. Sherman actually banned reporters from accompanying his army as it marched through Georgia, believing there was a direct relationship between media control and military victory.

The War Department initially attempted to control the media through censorship of the telegraph. There were numerous holes to this approach. Reporters could easily send their reports home via post. When the Postmaster General attempted to censor the mail, he ran afoul of Congress. Another limitation to this type of control was the fact that journalists could simply file their



Computer screen image of Arab TV station Al Jazeera's English-language channel as made available on the Livestation Internet web site. The image shows Ayman Mohyeldin, Al Jazeera's 29-year old correspondent, who reported on Israel's military offensive live from Gaza Strip for 22-days, and also shows message blogs from viewers. Viewing figures point to big gains in U.S. online interest, suggesting the war gave the Arab station its first significant chance to break into the American market. (AP/Wide World Photos)

reports when they returned to their newsrooms. Late in the conflict, the War Department began using a different approach when Secretary of War Edwin M. Stanton started issuing daily war bulletins. Given the competitive nature of journalism with its daily deadlines, these documents ended up channeling news coverage into certain areas and away from others.

The Civil War also marked the beginning of combat photography. The limitations of technology relegated Matthew Brady to documenting images that were primarily of the aftermath of battle. Brady was not above rearranging bodies on the battlefield to create more powerful images. Film documentaries from the War with Spain and both World Wars also included reenactments, raising serious questions about the factual accuracies of these images—an issue that basically remains to this day.

The alternation between negative restrictions and positive support that took place in the Civil War would characterize all following military efforts to control the media during times of war. Although both approaches are effective, attempts to eliminate journalistic coverage of military action can and often do backfire when there is little public recognition for military accomplishments or when other services and units receive disproportionate credit for combat developments. The military almost always has the advantage in this relationship because they control logistical support networks that reporters need to file their stories. Communication networks are generally the most important, but others include transportation, which gets reporters to the battlefield, and supply, which keeps them fed and clothed. When the military supported journalists in the field, they generally got good positive news coverage, reflecting an old reporting adage that the source controls more of the story than the reporter. During the War with Spain, Theodore Roosevelt was a legitimate military hero, but he emerged as one of the few well-known figures of this conflict because of its coverage by war correspondents Richard Harding Davis and Stephen Crane.

Support, though, is no guarantee of positive coverage. During this conflict, reporters could and did file critical news stories about military mismanagement of food and supply lines. Later in the Philippines, correspondents reported on the use of war atrocities during the Filipino Insurrection.

During World War I, the War Department following the lead of other belligerents established formal accreditation procedures for journalists covering the conflict. Part of this process required that correspondents agree to have their dispatches undergo the review of military censors.

In World War I, General John J. Pershing supported the return of the *Stars and Stripes* newspaper, which Union soldiers had first established during the Civil War, believing that it helped sustain troop morale. In World War II, the Chief of Staff of the U.S. Army, General George C. Marshall, who had been an officer on Pershing's staff, supported the second return of the newspaper for similar reasons. He made this point in an interview that appeared in the first issue of the re-reborn publication, underscoring his point. Lieutenant General Dwight D. Eisenhower saw it as the soldiers' home-away-from-home hometown newspaper and defended the publication from attempts to control its coverage.

During both world wars, the government attempted to impose restrictions on press coverage of the conflict. In World War I there were several absurd actions against European historians for writing accounts that presented the British as the enemy in the American Revolution, and others that recognized that Germany made important cultural contributions to the development of Western Civilization in the medieval period. In World War II the U.S. government issued a voluntary code of conduct, which most journalists agreed to honor. The code called for reporters, photographer, and cameramen to avoid depicting the graphic displays of wounded and dead soldiers or to reveal information embarrassing to the United States. In World War II, journalists were often allowed to go on missions with air, land, and sea units. Several were killed during these expeditions and the military often awarded them combat decorations and badges, such as the Purple Heart and airborne jump wings. This practice continued into the 1990s.

A notable exception to this conduct and voluntary restraint was the *Chicago Daily Tribune*. The publisher of the paper, Robert McCormick, was a relentless critic of the domestic and foreign policies of the Roosevelt Administration. His paper published mobilization plans just before the attack on Pearl Harbor. Less than a year later, it printed a news story that the United States had broken Japanese codes, which was one of the reasons for the U.S. victory in the Battle of Midway. No legal action, however, was ever taken against the newspaper. Intelligence officers refused to testify in open court about the damage that this public disclosure had done. A subsequent investigation showed that the reporter who wrote the story had standard clearance procedures and that the military censor reviewing this article had been careless. Concerns that this news story would alert the Japanese to a breach in their security had some foundation, but Japanese military liaisons in embassies in Central and South America who were monitoring developments in the United States had cancelled their subscriptions to the *Tribune* in a cost cutting measure and were reading other newspapers. Since no other paper reported on this story, the Japanese only learned of this information after the war.

The balance of news coverage in this conflict favored the war in Europe. News services had established bureaus in Europe, while much of the fighting in the

Pacific took place in undeveloped regions. To compensate, the Navy Department began an aggressive effort midway through the war to support war correspondents that the General Douglas MacArthur's command never duplicated. The sea services also developed a more frank policy than MacArthur's headquarters early in the war when they were experiencing a number of humiliating defeats. The result was that news accounts about this theater focused far more on the efforts of sailors and marines than they did about soldiers and airmen.

Coming only five years after the end of World War II, the Korean War was quite similar in its military-media relationship. The Vietnam War, though, appeared to be quite different from the recent past. Despite what partisans of both the media and the military would like to believe, journalists were quite docile during the early part of this conflict. Most war correspondents early in the war had experience covering previous hostilities or had served in the military themselves, and usually filed stories that never came close to challenging the direction of U.S. foreign policy, military strategy, or public support for the conflict. Reporters became less experienced as the war progressed, because their news services and publications found it cheaper to send more junior war correspondents. News coverage reflected rather than shaped the declining popularity of the war. Most reporters covered the war accurately, but Peter Braestrup, the Saigon bureau chief for *The Washington Post* in 1968, found the opposite when it came to the Tet Offensive. In his book *The Big Story,* he showed that most reporters were wrong in their coverage of this period, presenting Tet as a U.S. defeat. The news coverage of the three major television networks is another popular target for explaining why the American people tired of the conflict. Photographers and television cameraman generally observed restraints similar to those of World War II and Korea. The most powerful images of the war came only after the Tet Offensive. These include the film and photograph of General Nguyen Ngoc Loan's execution of a Viet Cong guerilla with a bullet to the head or the image of nine-year old Phan Thị Kim Phúc running down a road after suffering massive burns on her back from napalm.

The news media became a popular scapegoat within the military for explaining their unhappy experiences in Vietnam. The Department of Defense attempted to ban all coverage of the invasion of Grenada in 1983. The Pentagon imposed stringent controls on journalists during Operation: Desert Storm only to discover that many of its accomplishments received little attention or respect as a result. The pendulum shifted in 2003 with Operation: Iraqi Freedom. The Defense Department responded with an embedding program that put reporters with units as they advanced into Iraq. The result was extensive news coverage in print, television, and on the internet.

Nick Sarantakes

See also: Department of Defense; Eisenhower, Dwight David; Korean War; Marshall, George Catlett; Persian Gulf War I; Persian Gulf War II; Roosevelt, Franklin Delano; Vietnam War; World War I; World War II

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MILLS, C. WRIGHT (1916–1962)

Charles Wright Mills was a famous and inspiring American sociologist and controversial political polemicist who strongly asserted that the academic elite had a clear moral obligation to promote a better society by actively indoctrinating the masses with values. Referred to as one of America's foremost dissenters, he rose to prominence during the 1950s as a rare and dynamic liberal social thinker.

Mills was born on August 28, 1916, in Waco, Texas. He was the son of Charles Grover Mills and Frances Ursula Wright. His father was a salesman for an insurance company in the early 1920s, which kept him on the road a great deal of the time. Mills grew up under his doting mother's strong Catholic influence. Alienated and lonely, he lived in Waco until he was seven, with frequent moves thereafter to the Texas towns of Fort Worth, Wichita Falls, Dallas, and Sherman. He attended public and parochial schools and consistently earned a reputation as an indifferent or poor student, a rebel, and a loner. In 1934 he suddenly took up reading and began a lifelong habit of keeping a journal. He filled notebooks with personal recollections, memorable quotations, new ideas for further research, and drafts of parts of essays and books.

Mills started college at Texas A&M University in 1934 but then transferred to the University of Texas at Austin. He earned a bachelor's degree in 1938 and a master's in philosophy in 1939. From Texas he went to the University of Wisconsin for graduate work, where he studied under Hans Gerth and completed a doctorate in sociology in 1942. In those programs he impressed his teachers with his intellectual brilliance, his desire for knowledge, and his brashness. Just as he received his doctorate, he was turned down for service in World War II because of high blood pressure—a lifelong malady.

Ambivalent about marriage and somewhat unsuccessful at it, Mills divorced three times but never remained unmarried for long. He married Dorothy Helen Smith in 1937, divorced her in 1940, but remarried her in 1941. They had one daughter. After the second divorce from Smith on July 9, 1947, he married Ruth Harper the following day. They had one daughter. Mills and Harper were divorced in May 1959. On June 11, 1959, he married Gloria (Yaroslava) Surmach. They had one son.

Mills started his career as an associate professor of sociology at the University of Maryland from 1941 to 1945. He ingratiated himself with its president, once a coach, by claiming to be a former boxer. After a year as a Guggenheim fellow, he joined Columbia University, where he spent the rest of his career. He started there serving as the director of the Labor Research Division of the Bureau of Applied Social Research from 1945 to 1948, while at the same time working as an assistant professor between 1946 and 1950. Mills was promoted to associate professor (1950–1956) and then professor

of sociology (1956–1962). He spent visiting appointments at the University of Chicago in 1949, Brandeis University in 1953, and the University of Copenhagen in 1956 and 1957.

Casting himself as the perpetual outsider and lonely battler for truth and ethical understanding, Mills developed his theories about American life and society within those contexts throughout his career. After his first book in 1948, *The New Men of Power* (about labor leaders), he published *White Collar* in 1951. Both of these were important and new studies of a changed middle class after World War II and in the beginnings of the Cold War.

The Power Elite, Mills' most famous book, was published in 1956. In that work he posited that decisions on national issues were made by an interconnected body of men from the Executive Branch of the government with its army of bureaucrats, military policy makers, and corporate leaders. They controlled all access to power and denied much influence to those outside the power elite. The United States might look as if it were growing stronger and richer, but the majority of Americans were feeling less and less in control of their own lives.

Mills did not deem that situation a conspiracy among the power elite, as he felt that they all had the same interests at heart as the masses. One of his objectives in *The Power Elite* was to tell his readers, especially members of his own generation, how much the organization and society of America had changed, and probably not for the better. He spent the last few years of his life working on global issues, Marxism, and the Cuban Revolution.

The Power Elite brought Mills to national prominence as a radical social critic of the status quo. He cultivated notoriety and promoted an image of himself as unlike other intellectuals. He failed to get along with nearly everyone. Playing the role of a maverick professor at Columbia University, he rode a motorcycle to campus and stomped into the classroom in big leather boots and a lumberjack's shirt. He was a much-loved teacher. A capable carpenter, he constructed his own home. He lived hard, drank heavily, and smoked a lot. All those activities aggravated the untreated vascular condition that had kept him out of military service in 1942. Mills had his first heart attack in 1958; he died of heart failure on March 20, 1962.

Dying relatively young, Mills was not able to experience the impact his ideas would have on the radicalism and counterculture of the 1960s. The continuation of the Vietnam War demonstrated to many people that one of the main centers of power in their society was the entrenched "Military-Industrial Complex." President Dwight D. Eisenhower might have given it its name, but Mills had anticipated it in his many publications, especially in *The Power Elite.*

Ed English

See also: Cold War; Research and Development/Think Tanks/University Research; Vietnam War; World War II

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MISSILE GAP

Alleged shortfall of American intercontinental ballistic missiles (ICBMs) as compared to those of the Soviet Union during the late 1950s. The alleged missile gap turned out to be illusory. The popular idea of a missile gap between the United States and the USSR began in earnest after the Soviets' October 1957 launching of the world's first orbiting satellite. While the debate on this matter reached a crescendo in 1960, it had begun as early as 1956, when Democratic Senator Stuart Symington charged that the United States was lagging behind the Soviets in the production of guided missiles. President Dwight D. Eisenhower's administration denied the allegations, but the Democrats refused to let the issue alone. In August 1957 the Soviet Union launched the world's first ICBM and two months later launched the first satellite, *Sputnik 1,* propelled into space by a rocket.

Thus, to many Americans the Soviets seemed to have taken the lead in rocket technology. This development presented not only a public relations problem for the Americans but had national security ramifications as well. Now the United States was faced with the potential of a Soviet ICBM attack. This sense of technological inferiority and vulnerability was further increased by the findings of the 1957 Gaither Committee. Among other things the Gaither Report argued that the missile gap not only existed but that it was expected to widen, with the Soviets moving well ahead of the Americans in missile and rocket technology. Worse yet, National Intelligence Estimate (NIE) reports seemed to support this evaluation, concluding that the Soviet Union had the capability to manufacture 100 ICBMs in 1960 and some 500 more during 1961 and 1962. However, these figures were based on nothing more than pure speculation.

President Eisenhower tried to downplay *Sputnik 1* and the Gaither Report's findings, but public reaction was one of fear and outrage. Furthermore, the matter became a partisan political issue, as the Democrats seized upon it as a way to attack the president and the Republican Party for "complacency." Hard-line Democratic Cold Warriors saw these developments as proof that the Eisenhower administration had not been spending enough money on national defense. In fact the Eisenhower administration had spent a great deal of money on developing guided missiles, especially the Titan, Thor, Polaris, and Minuteman, but did so cautiously, seeking to find a middle ground among defense spending, domestic spending, and balanced budgets.

Even when the Central Intelligence Agency (CIA) presented to Eisenhower ominous estimations of the prospects of Soviet missile programs, the president remained unconvinced. The missile gap debate reignited in 1958 with the publication by Hanson W. Baldwin, military commentator for the *New York Times,* of the book *The Great Arms Race: A Comparison of Soviet and U.S. Power Today,* which criticized Eisenhower's reaction to *Sputnik 1.* This reinforced some voices coming from the Pentagon that were still warning of a missile gap and calling for increased defense spending.

Another influential voice that joined the fray was that of the prominent journalist Joseph Alsop, who charged that the Soviet Union "will have unchallengeable superiority in the nuclear striking power that was once our specialty." Alsop blamed Eisenhower.

The reaction to the column was striking, especially given the upcoming 1958 congressional elections. Eisenhower then launched a counter-campaign in which he asserted that no missile gap existed and that the United States still led in the missile race. However, his efforts failed to convince the public. The missile gap furor helped the Democrats retake both houses of Congress in the November 1958 elections. The Democrats were poised to push through higher defense appropriations and by doing so to embarrass the president. Indeed in 1959 Congress voted for a larger defense budget than that requested by Eisenhower.

The controversy did not end there. Among those convinced that the missile gap did exist was Massachusetts Democratic Senator John F. Kennedy. He partially conducted his 1959 senatorial reelection campaign using the missile gap as proof of Republican bungling. Kennedy easily won a second term, but he continued his crusade concerning the gap after reelection, although it appears that much of his evidence of a missile gap came from Alsop's columns on the matter and not from any hard intelligence sources.

Predictably, the missile gap proved to be a major issue in Kennedy's 1960 presidential campaign, in which he attempted to portray his opponent, Vice President Richard M. Nixon, as being soft on defense spending and communism. While Kennedy agreed with Eisenhower that the United States was militarily stronger than the Soviet Union, he was also convinced that the U.S. missile program was lagging behind that of the Russians, which would pose grave consequences for the future. Reportedly, Eisenhower had fairly reliable intelligence evidence—much of it gathered by clandestine U-2 reconnaissance overflights of the Soviet Union—suggesting that the United States actually possessed superiority over the Soviets vis-à-vis ICBMs. But national security imperatives bound him to secrecy. Kennedy won a perilously thin victory over Nixon in the 1960 presidential election. Once Kennedy became president, he quickly learned the truth: the missile gap was nothing more than a myth.

Kennedy did not, however, immediately reveal his knowledge about the missile gap. The controversy was quietly resolved during a February 1961 press conference by Kennedy's secretary of defense, Robert McNamara, who casually mentioned that there was no missile gap. With that the subject sank into relative obscurity. In fact Kennedy's national security policy was conducted on the basis that the United States enjoyed considerable strategic nuclear superiority over the Soviet Union. Some historians claim that this reality informed the outcome of the 1962 Cuban Missile Crisis.

David Tal

See also: Central Intelligence Agency (CIA); Cold War; Cuban Missile Crisis; Eisenhower, Dwight David; Kennedy, John Fitzgerald; McNamara, Robert Strange; Nixon, Richard Milhous; Soviet Union (USSR)

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MUTUAL ASSURED DESTRUCTION

Cold War strategic doctrine stressing nuclear deterrence between the United States and the Soviet Union, designed ostensibly to prevent a full-scale nuclear exchange. The doctrine of mutual assured destruction (MAD) was an important part of the Cold War beginning in the 1960s and is cited as one of the main reasons that there was no direct military confrontation between the United States and the Soviet Union. The doctrine was founded upon nuclear deterrence and was based on the premise that both superpowers had enough nuclear weapons to destroy each other many times over. Thus, if one superpower launched a nuclear first strike, the other would launch a massive counterstrike, resulting in the total devastation of both nations.

President Dwight D. Eisenhower's administration in the mid-1950s warned that if the United States were attacked first it would unleash massive retaliation. Thus, the MAD doctrine was born in the 1950s but did not reach fruition until the 1960s, when the Soviets achieved rough nuclear parity with the United States. U.S. Secretary of Defense Robert McNamara was then perhaps the first person to fully articulate MAD. Through the years technological advances were constantly molding the doctrine. The U.S. deployment of submarine-launched ballistic missiles (SLBMs) in the early 1960s, for example, ensured a second-strike capability, thus further deterring the likelihood of a first strike.

The doctrine propagated the notion that each side had equal nuclear firepower and that if an attack occurred retaliation would be equal to or greater than the initial attack. It followed that neither nation would launch a first strike because its adversary could guarantee an immediate, automatic, and overwhelming response consisting of a launch on warning, also known as a fail deadly. The final result would be the destruction of both sides. The end reasoning of MAD was that it contributed to a relatively stable peace.

The MAD doctrine survived into the 1970s and ironically contributed to the nuclear arms race. Each side tried to outwit and outproduce the other, as the example of the introduction of multiple independently targeted reentry vehicles (MIRVs) demonstrates. MIRVs came on line in the early 1970s and upped the ante of nuclear deterrence by placing multiple warheads on a single missile. The justification for this and other technological enhancements was that the more missiles produced, the less chance there would be of an intentional nuclear attack.

The MAD doctrine became essentially obsolete on July 25, 1980, when President Jimmy Carter adopted the so-called countervailing strategy by reorienting U.S. policy to win a nuclear war. This was to be achieved by attacking and destroying the Soviet leadership and its military installations. It was assumed that

such an attack would precipitate a Soviet surrender, thereby preventing the total destruction of the United States and the Soviet Union. This policy was taken even further by President Ronald Reagan, who proposed the Strategic Defense Initiative (SDI) in 1983. This was a system that would purportedly form a protective umbrella over the United States by destroying incoming nuclear missiles before they reached their targets. SDI has yet to be implemented, however, and many of its critics argue that there is no current technology available to make it a safe and reliable nuclear deterrent.

Dewi I. Ball

See also: Arms Race; Carter, James Earl, Jr.; Cold War; Eisenhower, Dwight David; McNamara, Robert Strange; Reagan, Ronald Wilson; Soviet Union (USSR); Strategic Defense Initiative; Weapons, Nuclear

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NASA was established in the United States by the 1958 National Aeronautics and Space Act at the urging of President Dwight D. Eisenhower. NASA's mission is to research problems of flight inside and outside the atmosphere of the Earth; develop, construct, test, and operate space and aeronautical vehicles; carry out activities for exploring space by manned and unmanned craft; and arrange for the most effective use of U.S. engineering and scientific resources for peaceful space and aeronautical activities.

NASA began its operation with the facilities and employees of the National Advisory Committee for Aeronautics (NACA), which it had replaced. NACA had begun in 1915, when Charles D. Walcott, secretary of the Smithsonian Institution, argued that a new office of the federal government should be created to stimulate the U.S. aviation industry, which was lagging behind that of the Europeans. Although NACA had been successful in advancing aviation technology, including the development of advanced jet propulsion, the late 1950s saw the birth of the space race. With the U.S. Navy, the U.S. Army, and the U.S. Air Force working to develop satellite technology, the government decided to consolidate all of their efforts under a single umbrella agency so that they would not be working at cross-purposes. NASA was the result.

From 1959 to 1963 the most important NASA project was the Mercury program. Mercury's goal was to put a human being into orbit around the earth. Although NASA succeeded in placing Alan Shepard in a suborbital flight on May 5, 1961, this achievement was overshadowed by the earlier orbital flight of Soviet cosmonaut Yuri Gagarin on April 12, 1961. The Mercury program ended in 1963.

During the second half of the 1960s with the introduction of the Apollo program to land an American on the moon, NASA grew rapidly. At one time during this $25-billion project, NASA either

directly or indirectly employed over 400,000 people. The first Apollo flight (Apollo 8) left Earth in December 1968. Two more test flights were conducted before Apollo 11's successful moon landing on July 20, 1969. When the Apollo project ended after its final mission in December 1972, NASA reduced its workforce considerably.

During the early 1970s NASA created a manned, orbiting space station called Skylab. The agency also launched the Viking Mars landers to conduct research in space and on the red planet. In the 1970s and 1980s NASA developed the space shuttle, a reusable space vehicle designed to make short-duration space flights easy and routine. NASA has had great success with this program, although the January 21, 1986, explosion during takeoff of the space shuttle *Challenger* forced NASA to delay further launches for more than two years.

In July 1997 NASA achieved tremendous success with its Pathfinder program, which carried a small robotic vehicle named Rover to Mars. Engineered and executed by the Jet Propulsion Laboratory (JPL) in California, the mission garnered renewed public support for the space program. Rover captured the attention and imagination of the entire world as it rolled off the space capsule to begin analyzing rocks and other elements on the planet. The mission was marked by JPL's use of relatively low-tech equipment to carry out high-tech goals—an unusual accomplishment for NASA, which has frequently come under fire for spending outrageous amounts on programs that failed or never fully justified their cost. Those criticisms surfaced again in December 1999, when NASA's $165 million Mars Polar Lander either failed to reach its destination or was destroyed upon impact with Mars. NASA and the JPL announced in April 2000 that they had ceased attempts to contact the craft.



The International Space Station (ISS) in December 2000. In partnership with Russia and 14 other nations, NASA—with Boeing as a major U.S. contractor—is steadily assembling the ISS with successive shuttle and Russian Soyuz missions. Three-person crews will continually man the station. The first module, Zarya, was launched on November 20, 1998; the last scheduled construction mission was originally set for April 2006, but delays have postponed the target completion date to at least 2010. (National Aeronautics and Space Administration)

In partnership with Russia and 14 other nations, NASA is steadily assembling the International Space Station (ISS) with successive shuttle and Russian Soyuz missions. Three-person crews will continually man the station. The first module, Zarya, was launched on November 20, 1998, aboard a Russian Proton rocket. When complete, the Space Station will be 356 feet across

and 290 feet long. It will weigh about a million pounds and will be able to house up to seven astronauts at a time. The ISS is designed to accommodate fundamental medical research and development of new materials. NASA envisions that the ISS will accelerate progress in technology and engineering and create economic opportunities worldwide.

A defining moment in NASA's recent history was the tragic breakup of the space shuttle *Columbia* on February 1, 2003, caused when the leading edge of the shuttle's left wing overheated due to the loss of insulating tiles during liftoff. It was determined that the damage was caused by a piece of insulating foam breaking off from a propellant tank. The disaster resulted in the grounding of all shuttle vehicles and caused a delay in the ISS program. It was not until July of 2005 that another shuttle, *Discovery,* was sent into orbit. Again a chunk of foam hit the spacecraft. While it did not seriously damage the shuttle, the incident resulted in a year-long delay in the space shuttle's schedule, seriously interfering with the planned completion of the ISS, which had originally been scheduled to be completed in April 2006.

The current administrator of NASA is Michael D. Griffin, who was appointed by President George W. Bush on March 11, 2005, and confirmed by the Senate on April 13. Prior to his appointment Griffin was the head of the Space Department of the Applied Physics Laboratory at Johns Hopkins University.

Currently NASA facilities are spread throughout the United States. NASA conducts flight testing at Dryden Flight Center in Edwards, California; it houses its manned mission control center at Johnson Space Center in Houston, Texas; and launch operations are conducted at Kennedy Space Center in Cape Canaveral, Florida. Subunits of NASA include the Ames Research Center for aeronautics, the Dryden Flight Research Facility, the Goddard Space Flight Center for astronomy and Earth sciences, and the JPL for solar system exploration.

S. Mike Pavelec

See also: Bush, George Walker; Eisenhower, Dwight David; Space Race; United States Air Force

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NATIONAL SECURITY COUNCIL REPORT NSC-68

NSC-68 was a response by President Harry S. Truman's administration to the Soviets' first atomic explosion in late August 1949 as well as the October 1949 communist victory in the Chinese Civil War. The top secret report was released to the president on April 14, 1950. Its principal architect was Paul H. Nitze, director of the State Department's Policy Planning Staff.

The basic premise of NSC-68 was that since the Soviets had developed a workable atomic bomb, a hydrogen

(thermonuclear) bomb would not be far behind. The drafters of NSC-68 estimated that by 1954, "the year of maximum danger," the Soviets would be capable of launching a crippling preemptive strike against the United States. According to NSC-68, the United States could not prevent such a blow without a massive increase in its military and economic capacities. Should the report not be heeded, in case of Soviet aggression the United States would be forced into appeasement or nuclear war. Nitze and other policymakers believed, therefore, that the key to avoiding this dilemma and preserving free-world security lay in a vast conventional rearmament. NSC-68 also demanded greater foreign aid, however, along with expanded military assistance to the Western Allies, additional funding for information and propaganda campaigns, better intelligence gathering, and an expansion of nuclear weapons programs.

Alarmed by the report's recommendations and likely costs, President Truman initially shelved the plan. Only after the sudden outbreak of the Korean War in June 1950 did he agree to implement the NSC-68 rearmament program. Thanks in part, at least, to the Korean War, U.S. defense expenditures quadrupled, going from $13.5 billion before the war to more than $54 billion by the time Truman left office in January 1953. The lion's share of this massive rearmament program in fact was not directed to the Korean War but instead went toward fulfilling America's long-term mobilization base as envisioned in NSC-68. Indeed NSC-68 put muscle into Truman's containment policy.

Although subsequent administrations would tinker with the recommendations in NSC-68, the report nonetheless guided U.S. national security and military mobilization planning for almost a generation after its drafting. Fundamentally, NSC-68 was underpinned by the traditional Cold War mentality. Many of its critics have argued that the report overstated the nature and extent of the Soviet threat. Some, however, have maintained that NSC-68 was a wise and prudent response to a real and present Soviet danger. Still others have pointed out that although NSC-68 may have painted a somewhat distorted picture of the Soviet Union, this distortion results more from what is now known from newly opened Eastern bloc archives as opposed to what was known to officials at the time. Whatever the case, it is a truism that NSC-68 was a seminal and paradigmatic Cold War document.

Josh Ushay

See also: China, People's Republic of (PRC); Cold War; Korean War; Soviet Union (USSR); Truman, Harry S.; Weapons, Nuclear

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NATIONAL SECURITY RESOURCES BOARD (NSRB)

The NSRB reported directly to the president (who was a permanent board member) and was designed to be the domestic counterpart of the National Security Council (NSC), also created by the National Security Act. During the Korean War the NSRB operated as the principal mobilization agency from September 9, 1950, to December 16, 1950, at which time President Harry S. Truman established the Office of Defense Mobilization (ODM), which superseded the NSRB and assumed many of its responsibilities.

From 1947 to 1949 the NSRB had as its permanent members the president of the United States; the chairman of the NSRB (appointed by the president); the secretaries of state, defense, the army, the navy, and the air force; and additional membΔers serving at the discretion of the president. From 1947 to 1950 the NSRB was chiefly a contingency-planning board. It mapped out strategies for civilian and industrial mobilization, manpower allocation, raw materials distribution, and conversion to a wartime economy; coordinated the efforts of federal agencies; supervised the stockpiling of critical war material; and advised on the relocation of strategic industries, government agencies, and economic activities in time of war. In short the NSRB was responsible for ensuring that the United States was ready and able to undertake industrial and economic mobilization for war.

In its first years the NSRB was a highly ineffective organization, partly because its responsibilities fell to numerous individuals rather than to one leader. Indeed, until 1949 the chairman did not exercise sole control over the NSRB. The NSRB's job was also made more difficult because it was unable to retrieve from defense planners in the Pentagon firm figures upon which to base its mobilization plans.

Arthur Hill was the first NSRB chairman. His tenure was short and lasted only until 1948. From 1948 to early 1950 the agency was headed by John R. Steelman, a Truman confidante and assistant to the president. Steelman maintained the title of acting chairman. The fact that the NSRB did not have a full-time chairman for nearly two years demonstrates Truman's ambivalence toward the NSRB and the NSC. He simply distrusted them and believed that relying on them too much invited military interference in civilian affairs. In 1950 Truman named Stuart Symington, first secretary of the air force, to take the helm of the NSRB. With the advent of the Korean War, the White House took renewed interest in the NSRB by placing it in the hands of an experienced bureaucrat with a history in military matters.

When the Korean War broke out in June 1950, Symington was among the first presidential advisors to recommend the imposition of economic controls. He was particularly concerned about the soaring prices and dwindling supply of key industrial materials. After Congress passed the Defense Production Act in early September 1950 that empowered the president to place the nation on a war footing, Symington, who had been lobbying the White House to place him in control of mobilization matters, was given that opportunity on September 9. Now the NSRB was charged with coordinating current and future mobilization

agencies as well as overseeing the possible imposition of economic controls.

Between September and December 1950, the NSRB proved incapable of meeting the exigencies of the crisis. Some of the problems stemmed from internal bureaucratic issues, including the Pentagon's unwillingness to share information with the NSRB. Other problems stemmed from the changing war goals between September and December, and of course the Chinese intervention in Korea in late November. When Truman decided to declare a national emergency on December 15, 1950, he created the ODM, realizing that he needed a new and more powerful mobilization agency to handle the crisis. The ODM effectively usurped all of the NSRB's enhanced powers. By early 1951 the NSRB had been all but emasculated and was once again restricted to long-term planning. In October it came under the aegis of the ODM.

In April 1951 Symington left the NSRB to become head of the Reconstruction Finance Corporation. He was replaced by Jack Gorrie, the last chairman of the agency. Before it was organized out of existence by President Dwight D. Eisenhower's administration in 1953, the NSRB was heavily involved in industrial dispersion programs. These were ways by which the federal government tried to locate new factories and industry away from city centers to render them less vulnerable to a nuclear attack.

Paul G. Pierpaoli Jr.

See also: Defense Production Act; Office of Defense Mobilization (ODM)

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NEW LEFT

The New Left was a political movement populated almost entirely by college students who came of age during the 1960s and whose worldviews were shaped by the civil rights movement and by the early years of the Cold War. The many and various organizations that may be loosely organized under the title of "New Left" were united by their radicalized opposition to poverty, racial prejudice, the building up of the Military-Industrial Complex, the ineffectiveness of President Lyndon B. Johnson's Great Society programs, and the Vietnam War.

The New Left might also be defined as a response to the theoretical failings of the "Old Left," whose reliance upon labor as the agent of historical change proved anachronistic in an age of advanced capitalism. In his "Letter to the New Left" (1960), sociologist C. Wright Mills argued that any relevant leftist ideology must instead combat the alienation and anomie of contemporary, affluent society. Mills' charge was taken up most publicly in the New Left's call for "participatory democracy," but it was also manifest in the countercultural ethos of hippies, rock music, recreational drug use, and the sexual revolution. The New Left existed in various guises until the mid-1970s, when the withdrawal of the United States from Vietnam removed the already splintered movement's last unifying cause.

The United States emerged from World War II as a global superpower, a claim staked on its military strength, explosive industrial productivity, and rapid economic growth. An era of unprecedented ideological consensus and prosperity followed. But while proponents of this newfound influence touted the fruits of democracy, free markets, and individualism, its critics warned against the growing and dehumanizing tendencies of bureaucracy, repression, and greed. In *The Lonely Crowd* (1950), David Riesman wrote of the "other-directed" worker who compromises in order to succeed in the corporate world. Writers such as Michael Harrington, Paul Goodman, William Appleman Williams, and Arnold Kaufman combined intellectual debate with public action in a kind of theoretical praxis. In popular culture, Elvis Presley, James Dean, and the Beats typified the new rebel, with or without a cause. And the civil rights movement threatened to undermine completely the appearance of perfect consensus in the Eisenhower United States. The freedom rides, sit-ins, and rallies that took place throughout the South modeled a style of nonviolent public protest that would later be adopted by the New Left.

After spending much of 1961 as a volunteer in the South and in the ghettoes of Newark, New Jersey, 22-year-old Tom Hayden returned to the University of Michigan, where he and nearly sixty other members of Students for a Democratic Society (SDS) met for four days to discuss politics, the civil rights movement, and their disenchantment with U.S. society. The result of their conference was the "Port Huron Statement," an influential and inspiring (if also idealistic) call for the radical restructuring of U.S. political and economic processes. Completed on June 15, 1962, the statement outlined a brand of "participatory democracy" that would minimize hierarchies and would make of politics a communal "art" capable of better organizing social relations. Economics would likewise be reimagined with human dignity rather than profit as the "essential measure of success." The SDS also used the document to speak out against "the Bomb" and the U.S. commitment to the "Cold War status quo."

The Port Huron Statement was greeted with great enthusiasm by its target audience: "people of this generation, bred in at least modest comfort, housed now in universities, looking uncomfortably to the world we inherit," as the statement's opening line declares. Within months its spirit had spread throughout the nation. In the fall of 1964, Mario Sava returned to Berkeley, California, from Maycomb, Mississippi, where he had been teaching in a freedom school, and discovered that authorities at the University of California, responding to conservative political pressure, had closed off parts of the campus to student activists. With its echoes of House Un-American Activities Committee loyalty oaths and McCarthyism, the ban ignited a four-month firestorm of public protest, most of it organized by the newly formed Free Speech Movement (FSM). The movement culminated on December 2, 1964, when approximately 1,000 students, accompanied by the sound of Joan Baez singing "We Shall Overcome," occupied Sproul Hall, the administration building. Nearly 800 were arrested, making it the largest mass arrest in California history.

A movement that began in protest of racial prejudice and wanton materialism came to national prominence as a radical

objection to the Vietnam War. As one measure of the New Left's expanding influence, by 1968 membership in the SDS had grown to more than 50,000 people. By that point various elements of the New Left had staged major demonstrations in many U.S. cities, most notably the 70,000-strong march on the Pentagon in October 1967. The New Left would also promote later campus uprisings, including those at Columbia University in 1968, Harvard University in 1969, and most notoriously Kent State University in 1970, when four antiwar protestors were killed by members of the National Guard. Various factions of the New Left also participated in the civil unrest that plagued the 1968 Democratic National Convention, after which eight prominent leaders of the movement, including Hayden, Yippies Jerry Rubin and Abbie Hoffman, and Black Panther Bobby Seale, were indicted on conspiracy charges. Convictions of the "Chicago Eight" were later reversed on appeal.

By the late 1960s the SDS had grown into a legitimate political force, but the election of Richard Nixon, the expansion of military action in Vietnam and Cambodia, and the creeping influence of Maoism combined to splinter the New Left into competing factions. In October 1969 one splinter group, the Revolutionary Youth Movement (RYM), rocked Chicago with a "Days of Rage" event that resulted in a riot in which six people were shot and seventy arrested. The RYM would later rechristen itself the Weather Underground Organization and become notorious for its campaigns of bombings and jailbreaks.

By the mid-1970s the New Left had essentially dissolved. The withdrawal of the United States from Vietnam stripped the movement of its political capital, and the countercultural excesses of the era began to catch up with the movement's participants, most of whom were now the "over-thirties" they had criticized earlier.

Darren Hughes

See also: Cold War; Eisenhower, Dwight David; Great Society; Johnson, Lyndon Baines; Mills, C. Wright; Nixon, Richard Milhous; Vietnam War; World War II

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NEW LOOK DEFENSE POLICY

Embraced by President Dwight D. Eisenhower's administration on October 30, 1953, through the National Security Council (NSC) policy document NSC 162/2, the New Look defense policy was designed to implement U.S. military policy in a more cost-effective way without losing any ground in the Cold War. During the 1952 presidential election, Eisenhower had criticized President Harry S. Truman's administration both for being soft on communism and for risking the economic health of the nation due to high defense costs and budget deficits. Once in office, the Eisenhower administration sought a new

policy that would fulfill its election pledges and address the events that unfolded during 1953.

Following the start of the Korean War in June 1950, the defense budget had nearly quadrupled by 1953, a fact that greatly troubled President Eisenhower. Working with his treasury secretary, George Humphrey, and his director of the Bureau of the Budget, Joseph Dodge, the president proposed a policy of fiscal conservatism that would help balance the budget and allow the nation to wage the Cold War without risking its economic well-being.

The need for a new defense posture was highlighted further when the policy-making apparatus of the Eisenhower administration ground to a halt as its leading protagonists were racked by indecision in the wake of Soviet leader Josef Stalin's death in March 1953 and the East German uprising in June of the same year. Leading members of the NSC argued over how best to exploit these situations and whether or not the United States should seize the initiative and attempt to roll back communism. In May 1953 Eisenhower launched Operation SOLARIUM, which established three task forces to study and debate the future of American military policy. Task Force A was headed by George Kennan and advocated a scenario loosely based on the containment policy already in place; Task Force B, led by Major General James McCormack, proposed a more muscular type of containment that would emphasize nuclear deterrence; and Task Force C, headed by Admiral Richard L. Conolly, examined the potential of a policy that would liberate Eastern Europe by rolling back communism. By July 1953 all three task forces had reported their findings to the NSC, although they were unable to reach consensus on the preferred course of action. Ultimately, the approach chosen would borrow from all three recommendations.

Discounting the 1950 NSC-68 policy document that presumed 1954 would be the "year of maximum danger," NSC 162/2 instead outlined a plan that would see the United States prepare for a long-haul struggle. The document called for greater use of covert operations and psychological warfare, an increase in aid to European and Asian allies, and a readiness to use nuclear weapons as a first response to any Soviet aggressive action, be it conventional or nuclear. At the same time, the New Look would decrease reliance on conventional forces, which it was hoped would bring down defense expenditures. The document was eventually initialed by Eisenhower on October 30, 1953. The policy was soon put into place, although U.S. defense budgets fell only marginally during 1954 and 1958 before rising once more.

Bevan Sewell

See also: Cold War; Eisenhower, Dwight David; German Democratic Republic (GDR, East Germany; Korean War; National Security Council Report NSC-68; Soviet Union (USSR); Truman, Harry S.; Weapons, Nuclear

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NIXON, RICHARD MILHOUS (1913–1994)

U.S. politician, vice president, and president of the United States. Born in Yorba Linda, California, on January 9, 1913, Richard Nixon graduated from Duke Law School and then practiced law in Whittier, California, until 1942. During World War II he spent four years in the U.S. Navy, serving in the South Pacific and becoming a lieutenant commander. After demobilization in 1946 he ran successfully for Congress as a Republican and in 1950 for a California Senate seat, races notable for his use of anticommunist smear tactics against his Democratic opponents. In 1952 Dwight D. Eisenhower selected Nixon as his running mate for the presidency, and Nixon spent eight years as vice president, demonstrating particular interest in foreign affairs and traveling extensively. In 1960 he narrowly lost the presidential race to John F. Kennedy. Eight years later Nixon was elected president on the Republican ticket.

As president, Nixon belied his earlier reputation as an uncompromising anticommunist, restructuring the international pattern of U.S. alliances by playing the China card and moving toward recognition of the communist People's Republic of China (PRC) while using the new Sino-American rapprochement to extract concessions on détente and arms control from the Soviet Union. In doing so Nixon worked closely with his energetic national security advisor, Henry A. Kissinger, restricting Secretary of State William P. Rogers largely to routine diplomatic business. Kissinger finally replaced Rogers in August 1973.

In 1968 the inability of the United States to achieve victory in the



Richard M. Nixon and Leonid Brezhnev meet during the Soviet Premier's 1973 visit to the U.S. (National Archives)

controversial Vietnam War, despite increasingly high deployments of troops, dominated the political agenda. Nixon, promising that he had a plan to end the war expeditiously, won the presidency. He accelerated the program of Vietnamization begun under President Lyndon B. Johnson, gradually withdrawing American troops while providing Republic of Vietnam (ROV, South Vietnam) forces with massive amounts of war supplies intended to enable them to defend themselves. In August 1969 Kissinger embarked on protracted negotiations with the Democratic Republic of Vietnam (DRV, North Vietnam). To win time for Vietnamization, Nixon ordered the secret bombing of Cambodia as well as a ground invasion of that country that helped bring the communist Khmer Rouge to power there later. At Christmas 1972 Nixon ordered a massive bombing campaign against North Vietnam to pressure its leaders to accept a settlement. Some assailed him for winning a peace settlement that effectively assured South Vietnam only a decent interval before a North Vietnam takeover two years later.

American withdrawal from Vietnam was only part of the broader strategic realignment that Nixon and Kissinger termed their Grand Design. The Nixon Doctrine, announced in July 1969, called upon American allies to bear the primary burden of their own defense, looking to the United States only for supplementary conventional and, when necessary, nuclear assistance. These decisions led to additional military spending, furthering the effects of the Military-Industrial Complex in the United States.

Conscious that their country no longer enjoyed the undisputed supremacy of the immediate post-World War II period and that growing economic difficulties mandated cuts in defense budgets, Nixon and Kissinger hoped to negotiate arms limitations agreements with the Soviet Union. To pressure the Soviets, whose relations with communist China had become deeply antagonistic by the early 1960s, Nixon began the process of reopening American relations with China, visiting Beijing in 1972, where he had extended talks with Chinese communist Chairman Mao Zedong and Premier Zhou Enlai, and preparing to deemphasize the long-standing U.S. commitment to the Republic of China (ROC) on Taiwan and recognize the communist PRC in its stead.

These tactics alarmed Soviet leaders and facilitated a relaxation of Soviet-American tensions, broadly termed détente. At a May 1972 Moscow summit meeting, Nixon and Soviet leader Leonid Brezhnev signed two arms limitations treaties, jointly known as SALT I, that took effect the following October. The Anti-Ballistic Missile (ABM) Treaty limited antiballistic missile defense sites in each country to two, with neither hosting more than a hundred ABMs. The Interim Agreement froze for five years the number of nuclear warheads possessed by each side. Détente did not mean the end of Soviet-American rivalry, however.

After winning a second presidential victory in 1972, Nixon hoped to move toward full recognition of the PRC and further arms control agreements. The outbreak of the Yom Kippur War in October 1973, however, diverted his administration's attention from these plans. The war precipitated an Arab oil embargo on Western states that followed pro-Israeli policies, contributing to an international spiral of skyrocketing inflation and high unemployment that

afflicted the United States and Western Europe throughout the 1970s.

Presidential summit meetings with Brezhnev at Moscow and Yalta in June and July 1974 brought no immediate results, in large part due to Nixon's own calamitous domestic problems, even though they set the stage for the Helsinki Accords and additional arms control agreements under Nixon's successor, Gerald Ford. The Watergate political scandal, which led to Nixon's resignation in August 1974, aborted all his ambitions for further progress in overseas affairs.

Nixon devoted his final two decades to writing his memoirs and numerous other books and essays on international affairs, part of a broader and reasonably successful campaign to engineer his political rehabilitation and to win respect from contemporaries and a place in history for his presidential achievements and foreign policy expertise. In Nixon's final years, several presidents, including Ronald Reagan, George H. W. Bush, and William Jefferson Clinton, sought his insights on various international subjects, especially relations with the PRC and the Soviet Union. Nixon died in New York City on April 22, 1994.

Priscilla Roberts

See also: Bush, George Herbert Walker; China, People's Republic of; Clinton, William Jefferson; Cold War; Eisenhower, Dwight David; Ford, Gerald Rudolph; Johnson, Lyndon Baines; Kennedy, John Fitzgerald; Reagan, Ronald Wilson; Soviet Union (USSR); Strategic Arms Limitation Talks and Treaties (SALT); Taiwan (The Republic of China); Vietnam War; World War II

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

Preliminary discussions surrounding an Atlantic treaty among the United States, Canada, and the Brussels Treaty Powers (Belgium, France, Luxembourg, the Netherlands, and Britain) began on July 6, 1948, in Washington, D.C. By the end of October, the framework for a mutual defense pact for the North Atlantic region was agreed upon. Drafting commenced in December 1948, and the final text was made public in March 1949. On March 15, 1949, the United States, Canada, and the Brussels Treaty Powers formally invited Denmark, Iceland, Italy, Norway, and Portugal to join the alliance. These nations all endorsed the North Atlantic Treaty on April 4, 1949, providing the legal basis for NATO. On August 24, 1949, the treaty entered into force, and the first North Atlantic Council (NAC) meeting took place in Washington on September 17.



Representatives from 12 nations convene in Washington, D.C. to sign the North Atlantic Treaty on April 4, 1949. (NATO Photos)

The first and primary task for the new organization was to put in place an effective and credible apparatus for collective defense. During NATO's first few years, efforts focused primarily on defense-related problems and their economic implications. The political process of cooperation, which was also a component of the alliance, remained largely undefined. In October 1949 President Harry S. Truman signed the Mutual Defense Assistance Act, setting the stage for U.S. involvement in NATO's collective security arrangements. In January 1950 he approved plans for the integrated defense of the North Atlantic region and authorized the expenditure of a significant sum of money for military aid.

Other important tasks after NATO's founding were establishing its main organizations and bodies and making them operational. To this end the NAC appointed U.S. General Dwight D. Eisenhower as the first Supreme Allied Commander Europe (SACEUR) on December 19, 1950. In April 1951 Supreme Headquarters Allied Powers Europe (SHAPE) became operational at Roquencourt, near Paris. Later that year the NATO Defense College (NDC) was unveiled in Paris. In March 1952 British General Hastings Lionel Ismay was appointed NATO's first secretary-general. A month later NATO opened its provisional headquarters in Paris and convened the first NAC meeting in permanent session. The first enlargement of the organization also took place in 1952, when Greece and Turkey were invited to join NATO.

On March 31, 1954, the Soviet Union requested membership in NATO, but

Britain, France, and the United States vetoed it. The Federal Republic of Germany (FRG, West Germany), on the other hand, was invited to join and became a member in 1955. By the mid-1950s broad lines of intra-alliance cooperation on defense issues had been defined, and the main institutional bodies had been established. Thus strengthening the political consultation process and cooperation in nonmilitary areas was identified as the new priority for NATO. In 1956 the NAC approved the recommendations on nonmilitary cooperation within NATO. In 1957 Belgium's Paul-Henri Spaak succeeded Ismay as NATO's secretary-general. At an NAC meeting later that year, member nations reaffirmed the principles and purposes of the alliance. In 1958 NATO defensive strategy was likewise reaffirmed, and in 1959 a new NATO headquarters was opened in Paris.

In 1961 Dirk U. Stikker of the Netherlands succeeded Spaak as secretary-general. In an NAC meeting that year, NATO members reaffirmed their support of West Berlin, strongly condemning the building of the Berlin Wall, and approved the renewal of diplomatic contacts with the Soviet Union. In the 1962 Athens Guidelines, the circumstances involving the use of nuclear weapons were reviewed. Toward this end the United States and Britain agreed to contribute and integrate part of their strategic nuclear forces to NATO. In a NATO military exercise (dubbed Operation BIG LIFT) in 1963, the United States ably demonstrated how quickly it could reinforce NATO forces in Europe in the event of a crisis. The following year Italy's Manlio Brosio became the new secretary-general.

In a move deeply troubling to other NATO states, French President Charles de Gaulle withdrew his nation from the integrated military structure of NATO in 1966. As a consequence NATO offices were relocated. In 1967 the NDC moved to Rome, SHAPE relocated to Mons, and NATO's headquarters was established in Brussels. In 1967 the NAC also approved the Harmel Report, aimed at reducing East-West tensions by proposing a new military strategy for NATO. The new strategic concept of flexible response provided the alliance with myriad options to respond to many types of enemy aggression. NATO's old strategy had required a massive military response to any form of aggression. Improving East-West relations thus became a new priority for NATO. In 1968 NATO issued the Declaration on Mutual and Balanced Force Reductions (MBFR), an initiative to work for disarmament and nuclear nonproliferation.

In 1970 NATO's first communications satellite was launched, and at the ministerial meeting later in the year the United States announced that it would not reduce its forces in Europe unilaterally. In 1971 Joseph Luns of the Netherlands succeeded Brosio as NATO secretary-general, while Brosio was tasked with conducting exploratory talks with the Soviets and other governments vis-à-vis MBFR. In 1974 member countries signed the Declaration on Atlantic Relationships, reaffirming the partnership between Europe and North America and also ensuring the continued development of transatlantic cooperation. Also in 1974 Greece withdrew its military forces from the integrated military structure of NATO to protest Turkey's military intervention in Cyprus.

In 1976 the prospects for MBFR were discussed. Because of the relentless growth in Warsaw Pact forces, the NAC

agreed to further strengthen NATO conventional defenses. Unfortunately this decision interrupted the promising developments in the MBFR process. The 1979 Soviet invasion of Afghanistan also endangered the improvement in East-West relations. The controversial double-track decision made at a special ministerial meeting in 1979 announced the deployment of intermediate-range ballistic missiles (IRBMs) in Europe, to be paralleled by an arms control effort to obviate the need for such deployments. In 1980 Greek forces were reintegrated into the NATO military structure. In 1982 Spain joined the alliance.

The first deliveries of IRBM components to Britain in 1983 were the ultimate result of the double-track decision. Deployment of the missiles proved highly controversial and sparked a considerable nuclear freeze movement throughout Western Europe. In response, the Soviet Union suspended negotiations on intermediate nuclear forces reductions. In 1984 Britain's Peter Alexander Rupert Carrington, the sixth Baron Carrington, became the new secretary-general.

In the mid-1980s East-West relations began to thaw. In 1986 NATO called upon the Soviet Union to help promote peace, security, and a productive East-West dialogue. A high-level task force on conventional arms control was established in 1986, and at the end of the year NATO foreign ministers issued the Brussels Declaration on Conventional Arms Control, calling for further negotiations on confidence-building measures and conventional stability. In 1987 the Intermediate-Range Nuclear Forces (INF) Treaty was signed, which eliminated American and Soviet land-based IRBMs. The forward progress in East-West relations continued throughout 1988. NATO issued a statement on conventional arms control, calling for progress in eliminating conventional force disparities. In July 1988 West Germany's Manfred Wörner succeeded Carrington as secretary-general. In December NATO foreign ministers welcomed Soviet reductions in conventional forces and outlined NATO proposals for negotiations on confidence-building measures and conventional stability.

In 1989 two new sets of negotiations were launched at the Conference on Security and Cooperation in Europe (CSCE) follow-up meeting in Vienna: talks on conventional armed forces in Europe (CFE) between NATO and the Warsaw Pact, and negotiations on confidence-building and security measures among all 35 CSCE members. In December 1989 NATO celebrated its 40th anniversary at a special summit meeting in Brussels. NATO set forth new goals and policies in recognition of the recent and sweeping changes in the waning Cold War and to further extend East-West cooperation. In July 1990 NATO issued the London Declaration, which provided a road map to guide the transition of the alliance from the era of Cold War confrontation to the age of post-Cold War cooperation and partnership. A joint declaration and commitment to nonaggression was signed in Paris in November 1990. The transformation of the alliance in the new security environment was clearly reflected in its new strategic concept unveiled in November 1991. Cooperation and partnership with Central and East European nations thus became a central and integral part of NATO policies.

The roots of change in NATO's history can be traced as far back as the Harmel Report of the late 1960s. Throughout the

decades, NATO continued to play an important role in providing the framework for consultation and coordination of policies among its member countries to diminish the risk of crisis and war.

Anna Boros-McGee

See also: Cold War; Eisenhower, Dwight David; Flexible Response; Germany, Federal Republic of (FRG, West Germany); Soviet Union (USSR); Truman, Harry S.; Weapons, Nuclear

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OAK RIDGE, TENNESSEE

Oak Ridge, Tennessee, was the site of one of the most ambitious Military-Industrial Complex's centers of production during World War II. Located near Knoxville, Oak Ridge was one of the secret locations that developed atomic materials for the Manhattan Project. U.S. Army General Leslie Groves, in charge of the Manhattan Project, secured the site in the early 1940s as a secluded location for the production of materials for the atomic bomb project. It was here that uranium was separated for fissile materials and later in the war plutonium was also produced. The Oak Ridge National Laboratory was later demilitarized and put under the control of the U.S. Atomic Energy Commission, where today further nuclear and related high-technology research continues.

S. Mike Pavelec

See Also: Manhattan Project; Weapons, Nuclear; World War II

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OFFICE OF DEFENSE MOBILIZATION (ODM)

Government agency created by executive order on December 16, 1950, in response to President Harry S. Truman's declaration of a national emergency. After the massive intervention by the People's Republic of China (PRC) in the Korean War, the Truman administration drastically accelerated the mobilization program. To implement this stepped-up process, Truman created the Office of Defense Mobilization (ODM) and appointed Charles E. Wilson, president of the General Electric Company, to



Conducting a visual inspection of the Oak Ridge Rutgers University Barrel Array, a high-resolution instrument with specialized particle detectors arranged in a barrel shape around a target. The instrument is housed at the Holifield Radioactive Ion Beam Facility at Oak Ridge National Laboratory. (Department of Energy)

direct its activities. The ODM replaced the older National Security Resources Board, which had been charged to direct Korean mobilization at the beginning of the war.

In creating the ODM, Truman gave to it unprecedented powers to mobilize the whole of U.S. civilian, industrial, and military resources. The major responsibilities of the ODM were to execute the mandates of the Defense Production Act, to ensure an adequate supply of war materiel to the soldiers in Korea, and to begin the long-term buildup of all of the nation's military forces, specifically those forces prescribed in NSC-68.

Falling under the aegis of the ODM were its various constituent agencies, the most important of which were the National Production Authority (NPA), the Defense Production Administration (DPA), and the Economic Stabilization Agency (ESA). Managerially organized by Charles Wilson, the ODM was designed to function as a policymaking and coordinating agency only. Thus, the NPA, DPA, ESA, and other already existing cabinet-level agencies carried out operational and other day-to-day mobilization activities. Organizationally, the ODM and its constituent parts resembled the typical large, vertically integrated, multidivisional corporation of the day, nearly mirroring the management structure of the General Electric Company. In this sense the ODM was patterned after the War Production Board of World War II.

The ODM made extensive use of industry advisory committees throughout its life span. These advisory committees, comprising nearly all sectors of the industrial economy, worked together with the ODM and other mobilization officials to



Marine Corps tanks are loaded onto a barge at the Naval Supply Center in Oakland, California, for shipment to forces in the Pacific Far Eastern Command in 1950. The Office of Defense Mobilization (ODM), created by President Harry Truman in 1950, had unprecedented authority to mobilize all of America's civilian, industrial, and war resources to supply the war effort in Korea. (National Archives)

establish and implement industrial and military production schedules. The use of such committees helped to keep operational functions out of the ODM and also served to ensure that key elements of the private sector worked together on matters of prices, wages, industrial output, and materials allocations.

In general the ODM functioned well. During the Korean War the nation's industrial base, military and civilian production, and weapons development grew at a rapid pace. As examples, by the end of the war aircraft plants churned out nearly 1,000 piston-driven planes per month, four times the number produced in mid-1950, while five times as many jet aircraft were being produced than in mid-1950.

After Charles Wilson resigned as ODM director in April 1952, the agency was headed successively by John R. Steelman and Henry H. Fowler. The ODM continued in existence after the war was over. In 1958, however, President Dwight D. Eisenhower consolidated the ODM and the Federal Civil Defense Agency into one agency under the new banner of the Office of Civil Defense and Mobilization (OCDM). In 1978 that agency was consolidated with several others to form the Federal Emergency Management Agency (FEMA), which remains today as the lineal descendant of the ODM.

Paul G. Pierpaoli Jr.

See also: Defense Production Act; Eisenhower, Dwight David; National Security Council Report NSC-68; Truman, Harry S.

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OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT, (OSRD)

The OSRD was established on June 28, 1941, to organize the federal government's mobilization of scientific and

technical expertise for World War II. By the end of the war, OSRD had signed over 2,500 contracts with universities and private research centers, employing over 17,000 scientists and researchers in various military research and development projects. In addition to its oversight of the atomic bomb program, OSRD contracts produced major wartime innovations in the areas of radar, undersea warfare, navigation, antiaircraft munitions and sensors, electronic countermeasures, and medical care.

On a structural level, the OSRD represented a fundamental shift in the roles of scientists, the military services, and the federal government in research and development. The OSRD model offered scientists far greater status and autonomy in military technological development than they had earlier enjoyed. The rise of OSRD also signaled a dramatic increase in the levels of government funding to private institutions for the purpose of scientific research and military-technological development. This government funding was provided in the form of contracts signed with existing universities and research centers. This system of "federalism by contract" shaped not only the wartime mobilization of American science but also the postwar relationship between scientific community and the federal government.

Before World War II the direct role of the federal government in scientific research was limited. Most of the funding for basic and applied scientific research came from private institutions and donors. While this limited the pool of funds, it offered scientists, universities, and research institutes broad latitude in the use of those funds. In the narrower realm of military research and development, the prewar model was one of uniformed leadership and government execution. The individual military services drove decisions on the choice and development of military technologies. Government engineers operating out of government arsenals and laboratories translated these decisions into military systems.

American scientific mobilization in World War I conformed to this model of service led innovation. While President Wilson created a National Research Council (NRC) within the National Academy of Sciences in 1917 to stimulate research across the natural sciences, the NRC lacked the focus and public funding necessary to integrate civilian science into applied military research on a large scale. In practice the government drafted civilian scientists and engineers and then directed them to execute the armed services' research priorities. The military services were suspicious of attempts of scientists to alter the path of research efforts; civilian scientists bridled at their subordination to military leaders whose knowledge of technology was often inferior to their own. It was the perceived shortcomings of this model of innovation that prompted the architects of the OSRD to develop a new one which placed civilian scientists on equal footing in the research and development process.

The prototype for the OSRD organization was the National Advisory Committee for Aeronautics (NACA). Established in 1915 to promote research into civil and military aviation, NACA contained many of the elements of the OSRD. NACA brought leading civilian scientists, industry and the military together in a formal, federally funded agency to address major

technical challenges in a specific, technological domain. The NACA also divided its work between contracts with private research entities and work in government run laboratories and research centers.

While NACA lacked the scale and scope to address the full challenge of wartime mobilization, it served as a model for the OSRD's founding father and NACA Board member, Vannevar Bush. Bush, the chairman of the Carnegie Institution and a former Vice President of MIT, was appointed to the NACA board in 1938. As the risk of major European war rose in the late 1930s, Bush concluded that a NACA type organization spanning the full range of defense topics could overcome three critical deficits of the World War I model: the uniformed services' limited understanding of advanced technologies, the paucity of funds devoted to military research and development, and the failure to attract leading civilian, technical talent.

In June 1940 with the French armies on the verge of collapse, Bush convinced President Roosevelt to endorse a multiservice, NACA type organization. The formal charter of the resulting National Defense Research Committee (NDRC) was to "correlate and support scientific research on the mechanisms and devices of warfare, except those relating to problems of flight." The charter made it clear that the NDRC was meant to supplement rather than replace the existing research and development activities of the War and Navy Departments. Like NACA, the NDRC committee was composed of leading civilian scientists who agreed to serve on a part time basis without compensation. The NDRC was to draw its funds directly from the Executive Office of the president.

Bush's success in creating the NDRC was as much personal as organizational. His professional connections had helped him mobilize the leading scientists who would lead first the NDRC and later the OSRD. While Bush sought to bring military members into the NDRC, it was the civilian committee members—Vannevar Bush, James Conant (President, Harvard University), Karl Compton (President, MIT), Frank Jewett (President, National Academy of Sciences and President, Bell Telephone Labs), Richard Tolman (Professor, Physical Chemistry and Mathematical Physics, California Institute of Technology), and Conaway Coe (Commissioner of Patents)—who were specified by name in the executive order. Collectively the stature and influence of the committee members, both in their respective disciplines and the academy as a whole, enabled them to identify and recruit high quality, scientific talent across the academic and industrial establishment. Backed by the leading figures in American science, and confident in the personal support of the president, Bush orchestrated a scientific mobilization that dwarfed that of World War I.

Bush set out at once to identify the most pressing, unmet research needs. He gave each of the committee members the authority to identify both the gaps and the scientists and institutions best positioned to fill them. Division A under Richard Tolman was responsible for research on armor and ordnance; Division B under James Conant was responsible for chemicals and explosives; Division C under Frank Jewett was responsible for communications and transportation; Division D under Karl Compton was responsible for radar an allied coordination; and Division E

under Conaway Coe was responsible for patents.

Based on his experience with NACA, Bush opted to use contracts with universities and research centers as the primary means of mobilizing civilian scientific talent. Instead of putting scientists in uniform and uprooting them from their home institutions, Bush planned to sign contracts with those institutions and mobilize the scientists in place. This solution minimized the disruption and cost of mobilization while at the same time insulating the scientists from the military bureaucracy. Though the contracts were made on a "no profit" basis, the NDRC opted to pay the full cost to the university, to include the indirect costs of administration and physical plant. While this increased the cost to the government, it ensured the willing cooperation of the private institutions and individual scientists.

Bush's bid to change the terms of the relationship between the uniformed military and the science community provoked significant, bureaucratic resistance. Admiral Bowen, the Navy Department's representative on the NDRC, sought to undermine Bush's bid for increased influence and control. While Bowen expressed the misgivings of many senior, military leaders, his attempt to derail the NDRC failed and he was ultimately reprimanded and reassigned by the Secretary of the Navy. Bowen's defeat marked the end of overt military resistance to the NDRC and OSRD. The combination of clear presidential support and the mounting evidence of NDRC/OSRD's contributions to innovation suppressed bureaucratic infighting for the duration of the conflict.

While the NDRC incorporated most of the core elements of the OSRD, Bush had concluded by 1941 that the former vehicle was inadequate in at least two respects. First, the NDRC was funded through the office of the president and not through Congressional appropriations. As the scale of the research grew, Bush and the committee members became convinced that stable and large scale funding required a shift to Congressional appropriations. Second, the NDRC lacked the formal authority to proceed beyond research to prototyping and small scale manufacturing. Bush felt it was essential to be able to produce small batches of new weapons to demonstrate their utility and provide a bridge to full scale production.

On June 28, 1941, President Roosevelt signed Executive Order 8807 establishing the OSRD. The new organization incorporated not only the existing committees of the NDRC but also those of NACA and a newly formed Committee on Medical Research (CMR). Bush served as the Chairman of the new organization while James Conant assumed leadership of the NDRC. The Administrative Office under Irvin Stewart developed and executed the contracts, relieving the contracted institutions and scientists of the need to manage the funding process.

With this new architecture in place, Bush set out to combine civilian scientific talent, military input, and unlimited financial resources to accelerate military innovation. The most important screening criterion was the expected speed of introduction; Bush was adamant that the OSRD should focus only on those projects likely to produce weapons during the course of the current war. The scale and scope of OSRD expanded rapidly, with the funds dispersed by NDRC/OSRD growing from $6.4 million in fiscal year

1941 to $42 million in 1942 and $143 million in 1943. By war's end, the OSRD had dispersed more than $558 million in contracts, or the equivalent of $6.7 billion in 2009 dollars.

OSRD contracts produced a host of innovations. Early exchanges with British radar scientists led to the transfer of the first resonant cavity magnetron. With this in hand, American scientists working out of OSRD's Radiation Lab produced over 150 different radar systems for use in air, ground, and naval platforms. Research on undersea warfare produced major advances in sonar and other detection technologies and a range of new, antisubmarine weapons including the first passive homing torpedoes and multiple launch antisubmarine mortars. OSRD scientists also pioneered the development of early precision guided, air-delivered munitions and proximity fuses for traditional and anti-aircraft artillery. Research by the CMR led to large scale production of penicillin, the development of a new range of anti-malarial medications, and major advances in the transportation and use of blood plasma and whole blood in battlefield medicine.

While the OSRD spawned a host of innovations across these areas, the development of the atomic bomb was the organization's crowning achievement. The bomb project called for OSRD's combination of leading edge scientific talent, vast resources, and active cooperation with industry. The organization and its leadership played pivotal roles in the decisions to build the bomb, subsequent oversight of the program, and the debates surrounding its testing and employment. First as the director of NDRC and later as the chairman of the OSRD, Bush was the key advisor in the early stages of the project. Starting in April 1941 Bush commissioned a series of three scientific reports on the uranium problem. These reports, and Bush's recommendations to Secretary of War Stimson, culminated with the January 1942 Presidential decision to develop an atomic weapon on an accelerated timeline. Research on uranium was brought under a new S-1 section of the OSRD, and an Executive Committee of the S-1 section was established as the key oversight body for the Manhattan project. Bush, James Conant, and other leading members of the OSRD made the critical early decisions in the project: to build a weapon, to place the War Department in charge of the engineering effort, and to pursue multiple, parallel approaches to the problem of uranium enrichment (gaseous diffusion, electromagnetic separation, fission reactors, and centrifuge separation). These same OSRD leaders played significant roles in the later stages of the project and the decisions to employ the weapon. No project better exemplified the flexibility, scale, and creativity of the new model of American technological and industrial development.

Though the OSRD had been designed to meet the demands of a wartime emergency, it served as the implicit model for postwar relations between science, industry, and the defense establishment. Even after its dissolution in 1947, it was the wartime success of the OSRD that explained the federal government's willingness to expand funding for basic and applied research in the immediate postwar period. Scientists introduced to "federalism by contract" in wartime were more willing to accept federal funds in return for cooperation with defense and other government goals. Even the military services, once strongly opposed to the idea of collaboration with

civilian science and industry, developed a number of smaller scale, OSRD type organizations to lead their own in house research and development. Simply put, the OSRD marked the boundary between the premodern and the modern in three important areas: government sponsorship of basic and applied science; military interaction with the scientific community; and military, industrial, and technological cooperation in military research and development.

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See also: Bush, Vannevar; National Aeronautics and Space Administration (NASA); Research and Development/Think Tanks/University Research; Roosevelt, Franklin Delano; Weapons, Nuclear; World War I; World War II

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P

PARTIAL TEST BAN TREATY (PTBT) (AUGUST 5, 1963)

Treaty banning all nuclear tests, except underground trials. The PTBT, also known as the Limited Test Ban Treaty (LTBT), was signed in Moscow on August 5, 1963, by representatives of Great Britain, the United States, and the Soviet Union and was entered into force on October 10, 1963, with unlimited duration. The PTBT was the result of five years of intense negotiations concerning the limiting of nuclear weapons tests. Some 125 nations have since signed the document, although France and the People's Republic of China (PRC) refused to sign, arguing that the test ban was a means of preserving the superiority of the three initial nuclear powers.

The PTBT was clearly an attempt to make nuclear weapons programs more difficult to sustain, thus limiting nuclear proliferation. The signatories to the treaty agreed that they would no longer carry out any nuclear test explosion in the atmosphere, underwater, in outer space, or in any other environment that would allow the spread of radioactive fallout beyond the territorial borders of the state conducting the test. There was a precedent for an agreement of this kind, namely the 1959 Antarctic Treaty, the first major international arms control treaty following World War II. Its goal was to prevent the use of Antarctica for military purposes in the belief that it was in humankind's interest to keep the continent pristine and open to scientific research.

World public opinion was already attuned to the dangers of atmospheric nuclear testing as a result of the 1954 *Castle Bravo* incident, when a thermonuclear weapons test at Bikini Island in the Pacific unwittingly exposed to nuclear fallout 28 Americans, 236 Marshall Islanders, and 23 crew members of the Japanese fishing boat *Castle Bravo*. Public opinion was further inflamed by France's decision to conduct atmospheric tests in Polynesia in 1962.

Furthermore, in the United States there was increasing support for a test ban throughout the summer of 1963. In early

July of that year, 52 percent of Americans signaled unqualified support for a test ban. After the treaty had been signed, 81 percent of those polled approved the ban. During the early 1960s two developments were influential in pushing forward a test ban. Considerable radioactive materials were being poured into the atmosphere as a result of atmospheric nuclear testing, and the world's nuclear states had advanced their nuclear technology to the point where a combination of underground tests and physical calculations gave them sufficient information to design and test their strategic weapons without the risk of radioactive fallout.

In 1962 the newly established Eighteen-Nation Disarmament Committee (ENDC) within the United Nations (UN) became the principal forum for discussions concerning a test ban. After protracted negotiations, an agreement emerged on the use of seismic stations and on-site inspections for verification purposes, but disagreement on the acceptable number of inspections continued. In July 1963 the United States, Britain, and the Soviet Union initiated tripartite talks on the cessation of nuclear tests in the atmosphere, in outer space, and underwater. The agreement on a partial test ban treaty came out of those discussions after about three weeks of talks.

The PTBT seemed to offer hope for future disarmament agreements. Following the PTBT negotiations, worldwide concern over nuclear testing and the nuclear arms race in general declined dramatically. In 1968 the Nuclear Non-Proliferation Treaty (NPT) was signed, restricting the flow of weapons, technical knowledge, and fissile materials to states that did not already have nuclear weapons. The United States and the Soviet Union went a step further in 1974 when they signed the Threshold Test Ban Treaty (TTBT). It limited underground testing, which was allowed by the PTBT, to a maximum weapons yield of 150 kilotons and only at declared testing sites. It also allowed on-site inspection by the other state for any test expected to exceed 35 kilotons. The TTBT did not enter into force until 1990. It had a duration of five years, with five-year extensions, and remains in force today. The Comprehensive Test Ban Treaty (CTBT) was called for in the preamble of the PTBT but was not signed until 1996. As of 2007 the United States had refused to ratify the CTBT, despite being one of the original signatories. Nonetheless, the United States, Great Britain, and Russia have observed unilateral nuclear testing moratoriums since 1992, and the last French test took place in 1995.

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See also: China, People's Republic of (PRC); France; Soviet Union (USSR); United Kingdom; Weapons, Nuclear; World War II

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PATRIOT ACT (2001)

Legislation passed by the United States Congress and signed into law by Presi-



President George W. Bush signs the Patriot Act Bill during a ceremony in the White House East Room, October 26, 2001; the law gives police unprecedented authority to search people's homes and business records secretly and eavesdrop on telephone and computer conversations. (AP/Wide World Photos)

dent George H. W. Bush on October 26, 2001. It was prompted by the September 11, 2001, terrorist attacks on the United States. The Patriot Act greatly expanded U.S. government intelligence and law enforcement powers, thereby supposedly boosting the government's ability to combat terrorism. The legislation was renewed on March 9, 2006. Critics of the Patriot Act assert that it threatens and violates civil liberties. Supporters of the bill insist that it is vital to protecting America from terrorism.

The Patriot Act of 2001 amended federal criminal, banking, money-laundering, and immigration laws. For example, it authorizes "roving" wiretap authorization of a suspect rather than of a particular communication device. Two sections of the law amend immigration laws dealing with "excludable aliens" from entering the U.S. and allow the government to deport or detain aliens for associating with terrorists. Section 802 of the act created the new category of the crime of domestic terrorism, while Sections 803 and 805, respectively, punish people who either "harbor" or provide "material" support for or conspire with terrorists and terrorist organizations.

Most of the criticism of the Patriot Act has been directed at Section Two of the law. For example, by authorizing so-called "sneak and peak" warrants without having to immediately notify the suspect that their home or property has been searched, the act is said to violate the Fourth Amendment to the U.S. Constitution. According to the Department of Justice (DOJ), however, such warrants have been used for decades against organized crime and drug dealers, and the U.S. Supreme Court has ruled that in some circumstances, the Fourth Amendment to the Constitution does not require immediate notification that a search warrant has been conducted.

Section 215 allows the Federal Bureau of Investigation (FBI) to order any person or entity to turn over "any tangible things" for an authorized investigation to protect against international terrorism or clandestine intelligence activities. Besides allegedly violating the Fourth Amendment, this Section is also said to violate freedom of speech, according to the America Civil Liberties Union (ACLU).

Defenders of the Patriot Act note that Section 215 can only be used with the approval of one of three high-ranking FBI officials to obtain foreign intelligence information "not concerning a United States person" or "to protect against international terrorism or clan-

destine intelligence activities." It prohibits investigations based solely on activities protected by the First Amendment and requires the FBI to notify Congress every year of all investigations it has conducted. In addition, those served with a 215 order can challenge its legality.

Critics of the Patriot Act also object to Section 218 because it expands the authority of a secret federal court, the Foreign Intelligence Surveillance Court (FISC), to approve searches and wiretaps if foreign intelligence is a "significant purpose" of the investigation. This is counter to the 1978 Foreign Intelligence Surveillance Act (FISA) standard of "primary purpose." The ACLU argues that Section 218 violates the Fourth Amendment because it extends the FBI's authority to spy on Americans for "intelligence purposes," without having to prove a crime has been or will be committed. Because those targeted for surveillance under Section 218 are never notified that they are under investigation and cannot challenge the warrant because the proceedings of the FISC are secret, the ACLU warns that the potential for abuse of power is immense.

Under the FISA, foreign intelligence had to be the "primary purpose" of wiretaps and searches; the new standard of "significant purpose" is defended to overcome a "wall" that prohibited information sharing and cooperation between intelligence and criminal investigations. Because of this "wall," in August 2001 the FBI refused to allow criminal investigators to assist an intelligence investigation to locate two terrorists—Khalid al-Midhar and Nawaf al-Hazmi—who a month later piloted the plane into the Pentagon on September 11.

For all the claims of alleged abuse and violations to civil liberties by the Patriot Act, *USA Today* reported on March 1, 2006, that according to the Chairman of the House Judiciary Committee (and sponsor of the Patriot Act), Representative James Sensenbrenner Jr., Congress had found no violations of civil liberties. Yet the ACLU points out that on January 23, 2004, a U.S. federal judge ruled Section 805 of the Patriot Act—which prohibits providing "expert advice or assistance" to designated international terrorist organizations—unconstitutional because it is vague. And on April 9, 2004, another federal judge ruled that Section 505, which allows the FBI to issue a "National Security Letter" demanding information about customers and subscribers from email and Internet service providers without any court review or approval, was also unconstitutional.

On December 16, 2005, the *New York Times* revealed that following the September 11 attacks, President Bush authorized the National Security Agency (NSA) to eavesdrop on international phone calls without a warrant, sparking a heated legal controversy. Bush has maintained that his authority as commander-in-chief gives him the authority to protect the U.S. from terrorist threats and that on September 18, 2001, Congress recognized this when it authorized the president to use all necessary means to apprehend terrorists. By not seeking a warrant from the FISC, however, the ACLU maintains that this program is illegal and violates both the Fourth Amendment and the 1978 FISA. The DOJ, however, notes that the NSA program is "narrowly focused, aimed only at international calls targeted at al-Qaeda

and related groups, and only applies to communications where one party is outside the U.S." This argument, however, convinced none of the Act's critics.

Furthermore, leaders from both parties along with the leaders of the House and Senate Intelligence Committees were briefed about the phone-tapping program a dozen or more times since 2001. Director of the Central Intelligence Agency (CIA) Michael Hayden stated on December 19, 2005, that this program "has been successful in detecting and preventing attacks inside the U.S." Nevertheless, the battle continues to rage over the extent and appropriateness of the Patriot Act, with many critics arguing that the law violates basic constitutional rights and has the potential to turn the nation into a secretive police state. Supporters, on the other hand, claim that the Patriot Act has made America safer and is a small price to pay to ensure that there is not another September 11.

Stefan Brooks

See also: Bush, George Walker; Central Intelligence Agency (CIA)

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PERSIAN GULF WAR I (JANUARY 17–FEBRUARY 28, 1991)

The Persian Gulf War resulted from the Iraqi invasion of neighboring Kuwait. In July 1990 U.S. intelligence detected an Iraqi military buildup along the Kuwaiti border. On July 17 Iraqi dictator Saddam Hussein threatened military action against Kuwait for its violation of Organization of Petroleum Exporting Countries (OPEC) oil caps. Overproduction had driven down the price of oil. Because of Iraq's recently completed eight-year war with Iran (1980–1988), it had accumulated a war debt of some $80 billion, and Baghdad was anxious to keep oil prices high. There was also an ongoing Iraqi border dispute with Kuwait over charges of Kuwaiti slant-drilling into Iraqi-controlled oil fields. Finally Iraq had long claimed Kuwait as a province.

Washington had been increasingly concerned over Iraq's expanding nuclear industry and its chemical and biological weapons, some of which Hussein had used in the war against Iran and even against his own people—the Kurds. But U.S. policy was ambiguous and Iraqis knew that Washington had tacitly supported them in the war with Iran, providing satellite intelligence information on Iran. U.S. Ambassador to Baghdad April Glaspie delivered mixed messages on behalf of the George H. W. Bush administration that seemed to allow Hussein free rein in the Persian Gulf. Hussein thus believed that Washington would probably not challenge a move against Kuwait. On its part the State Department did not believe that Hussein would actu-



The Qatari F-1 Mirage, French F-1C Mirage, U.S. Air Force F-16C Fighting Falcon, Canadian CF/A-18A Hornet, and Qatari Alpha Jet were all employed by coalition forces during Operation DESERT SHIELD. (Department of Defense)

ally mount a full-scale invasion. If military action occurred, Washington expected only a limited offensive to force the Kuwaitis to accede to Iraqi oil production demands. Clearly, Washington underestimated Hussein's ambitions.

On August 2, 1990, Iraqi forces invaded Kuwait and speedily overran the country. The United States demanded that Hussein recall his troops from Kuwait. When he refused, the Bush administration took action. Washington feared that an unchecked Iraq would threaten Saudi Arabia, which possessed the world's largest oil reserves, and thus would be able to control both the price and flow of oil to the West. Bush also saw Hussein as a new Adolf Hitler and was determined that there would be no Munich-like appeasement of aggression.

On paper Iraq appeared formidable. Its army numbered more than 950,000 men, and it had some 5,500 main battle tanks (MBTs), of which 1,000 were modern T-72s; 6,000 armored personnel carriers (APCs); and about 3,500 artillery weapons. Hussein ultimately deployed 43 divisions to Kuwait, positioning most of them along the border with Saudi Arabia.

In Operation DESERT SHIELD, designed to protect Saudi Arabia and prepare for the liberation of Kuwait, the United States put together an impressive coalition that included Syria, Egypt, and Saudi Arabia, as well as Britain, France, and many other states. Altogether, coalition assets grew to 665,000 men, 3,600 tanks, and substantial air and naval assets.

Hussein remained intransigent but also quiescent, allowing the buildup of

coalition forces in Saudi Arabia to proceed unimpeded. When the deadline for Hussein to withdraw from Kuwait passed on January 15, 1991, coalition commander U.S. Army General H. Norman Schwarzkopf unleashed Operation DESERT STORM on January 16. It began with a massive air offensive, striking targets in Kuwait and throughout Iraq, including Baghdad. In only a few days the coalition had established absolute air supremacy over the battlefield. Iraq possessed nearly 800 combat aircraft and an integrated air defense system controlling 3,000 antiaircraft missiles, but it was unable to win a single air-to-air engagement, and coalition aircraft soon destroyed the bulk of the Iraqi Air Force. Air superiority assured success on the ground.

The air campaign destroyed important Iraqi targets along the Saudi border. Night after night B-52s dropped massive bomb loads in classic attrition warfare, and many Iraqi defenders were simply buried alive. Schwarzkopf also mounted an elaborate deception to convince the Iraqis that the coalition was planning an amphibious assault against Kuwait. This feint pinned down a number of Iraqi divisions. In reality Schwarzkopf had planned a return to large-scale maneuver warfare, which tested the U.S. Army's new AirLand Battle concept.

Schwarzkopf's campaign involved three thrusts. On the far left 200 miles from the coast, XVIII Airborne Corps of the 82rd Airborne Division and the 101st Airborne Division (Airmobile), supplemented by the French 6th Light Armored Division and the U.S. 24th Infantry Division (Mechanized) and 3rd Armored Cavalry Regiment, were to swing wide and cut off the Iraqis on the Euphrates River, preventing resupply or retreat. The center assault, the mailed fist of VII Corps, was to be mounted some 100 miles inland from the coast. It consisted of the heavily armored coalition divisions: the U.S. 1st and 3rd Armored Divisions, the 1st Cavalry Division, the 1st Infantry (Mechanized) Division, and the British 1st Armored Division. VII Corps's mission was to thrust deep, engage, and then destroy the elite Iraqi Republican Guard divisions. The third and final thrust was to occur on the coast. It consisted of the U.S. 1st Marine Expeditionary force of two divisions, a brigade from the U.S. 2nd Armored Division, and allied Arab units and was to drive on Kuwait City.

On February 24 Allied forces executed simultaneous drives along the coast, while the 101st Airborne Division established a position 50 miles behind the border. As the Marines moved up the coast toward Kuwait City, they were hit in the flank by Iraqi armor. In the largest tank battle in the history of the U.S. Marine Corps, the Marines, supported by coalition airpower, easily defeated the Iraqis. The battle was fought in a surrealist day-into-night atmosphere caused by the smoke of oil wells set afire by the retreating Iraqis.

As the Marines, preceded by a light Arab force, prepared to enter Kuwait City, Iraqi forces fled north with whatever they could steal. Thousands of vehicles and personnel were caught in the open on the highway from Kuwait City and were pummeled by air and artillery along what became known as the "highway of death." The Allies now came up against an Iraqi rear guard of 300 tanks covering the withdrawal north toward Basra of four Republican Guard

divisions. In perhaps the most lopsided tank battle in history, the Iraqi force was defeated at a cost of only one American death.

Lieutenant General Frederick Franks Jr., commander of VII Corps to the west, angered Schwarzkopf by insisting on halting on the night of February 24 and concentrating his forces rather than risk an advance through a battlefield littered with debris and unexploded ordnance and subject to the possibility of casualties from friendly fire. When VII Corps resumed the advance early on February 25, its problem was not the Iraqis but the supply of fuel; because of the speed of the advance, the M1s needed to be refueled every eight to nine hours.

The afternoon of February 27 saw VII Corps engaged in some of its most intense combat. Hoping to delay the coalition, an armored brigade of the Medina Republican Guard Division established a 6-mile-long skirmish line on the reverse slope of a low hill, digging in their T-55 and T-72 tanks. The advancing 2nd Brigade of the 1st Armored Division came over a ridge, spotted the Iraqis, and took them under fire from 2,500 yards. The American tankers used sabot rounds to blow the turrets off the dug-in Iraqi tanks. The battle was the largest single armor engagement of the war. In only 45 minutes, U.S. tanks and aircraft destroyed 60 T-72, 9 T-55 tanks, and 38 Iraqi armored personnel carriers.

Allied tanks, especially the M1A1 Abrams and the British Challenger, had proved their great superiority over their Soviet counterparts, especially in night fighting. Of 600 M1A1 Abrams that saw combat, not one was penetrated by an enemy round. Conversely, the M1A1's 120mm gun proved lethal to Iraqi MBTs. It could engage the Iraqi armor at 3,000 meters (1.86 miles), twice the Iraqis' effective range, and its superior fire control system could deliver a first-round hit while on the move. Overall, the coalition maneuver strategy bound up in the AirLand Battle worked to perfection. As VII Corps closed to the sea, XVIII Corps to its left, with a much larger distance to travel, raced to reach the fleeing Republican Guards' divisions before they could escape to Baghdad.

In only 100 hours of ground combat, Allied forces had liberated Kuwait. On February 28 President Bush stopped the war. He feared the cost of an assault on Baghdad, and was also concerned that Iraq might then break up into a Kurdish north, a Sunni Muslim center, and a Shiite Muslim south. Bush wanted to keep Iraq intact to counter a resurgent Iran.

The war was among the most lopsided in history. Iraq lost 3,700 tanks, more than 1,000 other armored vehicles, and 3,000 artillery pieces. In contrast, the coalition lost 4 tanks, 9 other combat vehicles, and 1 artillery piece. In human terms, the Allies sustained 500 casualties (150 dead), many of these from accidents and friendly fire. Iraqi casualties totaled between 25,000 and 100,000 dead, with the best estimates being around 60,000. The coalition also took 80,000 Iraqis prisoner. Perhaps an equal number simply deserted.

Following the cease-fire, Hussein reestablished his authority. He put down, at great cost to the civilian population, revolts by the Shiites and Kurds. He also defied United Nations (UN) inspection teams by failing to account for all of his biological and chemical weapons, the so-called weapons of mass destruction (WMD). Ultimately, President George W. Bush would use the alleged presence

of WMD as an excuse to send U.S. and allied forces to invade and occupy Iraq in another war in 2003.

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See also: Bush, George Herbert Walker; Bush, George Walker; North Atlantic Treaty Organization (NATO); United Kingdom (UK); United States Air Force; United States Army; United States Marine Corps; United States Navy

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PERSIAN GULF WAR II (MARCH 19–MAY 1, 2003)

Following the Allied victory over his forces in the 1991 Persian Gulf War, Iraqi dictator Saddam Hussein defied United Nations inspection teams seeking to account for Iraqi biological and chemical weapons programs, the so-called weapons of mass destruction (WMDs). Stymied by Hussein's intransigence, the United Nations (UN) withdrew its inspectors, but it continued its economic sanctions on Iraq, while U.S. and British aircraft enforced the no-fly zones for Iraqi fixed-wing aircraft in northern and southern Iraq.

George W. Bush, elected president of the United States in November 2000, adopted an increasingly tough stance regarding Iraq following the al-Qaeda terrorist attack of September 11, 2001. President Bush asserted his intention to root out terrorism and punish states that supported it, specifically mentioning an "Axis of Evil" of Iraq, Iran, and North Korea. The U.S. government, supported chiefly by the British government of Prime Minister Tony Blair, secured a UN Security Council resolution demanding that Iraq make a full disclosure of its WMDs and threatening force unless there was full Iraqi compliance with UN inspectors.

Although Iraq claimed it had no WMD programs, UN inspectors reported frequent obstacles and only mixed success. Increasingly, the Bush administration, supported by Blair, demanded the use of force against Iraq, although a coalition of France, Germany, and Russia blocked authorization for such action in the UN. Bush and Blair then decided to proceed virtually alone. With strong U.S. public support, Bush secured congressional authorization. The Bush administration also asserted an Iraqi tie with al-Qaeda. Later its critics charged that the administration had deliberately distorted available intelligence and even knowingly lied to the American people to make the case for war. Bush now demanded not only that Hussein be disarmed but that he be removed from power and a democratic government installed.



U.S. marines on a foot patrol in Baghdad prepare to rush a house believed to contain a weapons cache, April 18, 2003. (Department of Defense)

For some time the United States had been building up forces in Kuwait. More than 300,000 personnel were deployed in the theater under U.S. Army Central Command commander General Tommy Franks. Actual coalition combat strength on the ground numbered some 125,000 American, 45,000 British, 2,000 Australian, 400 Czech and Slovak, and 200 Polish troops. Unlike the 1991 Persian Gulf War, here was no broad-based coalition helping to bear the cost of the war. Although Kuwait and Qatar supported the United States, Saudi Arabia refused the use of its bases for air strikes against Iraq. Washington also experienced a major setback when the Turkish Parliament, despite promises of up to $30 billion in financial assistance, refused to allow the United States to use its territory to open up a northern front, a key component of the U.S. military plan. Three dozen ships laden with equipment for the 30,000-man U.S. 4th Infantry Division (ID) lay off Turkish ports. Only after the war began were they redirected through the Suez Canal and around the Arabian Peninsula to Kuwait. The Turkish government decision meant that the 4th ID would have to be part of the follow-on force and that Iraq could concentrate its military efforts to the south.

The war, dubbed Operation IRAQI FREEDOM, began on the night of March 19, just hours after the expiration of President Bush's ultimatum to Saddam Hussein elapsed. It started with a precision cruise missile strike against a meeting of the Iraqi leadership in Baghdad. Over succeeding nights, the city was repeatedly hit with cruise missile attacks and air strikes by B-1, B-2, and B-52 bombers against key headquarters and command and control targets.

This "Shock and Awe" campaign did not appear to be on the massive scale that Central Command had suggested. Part of this was the use of 70 percent "smart" (guided) weapons and 30 percent "dumb" (unguided) aerial munitions, as opposed to only 10 percent "smart" weapons during the 1991 Persian Gulf War. Also a good many of the air strikes occurred away from the capital.

On March 22 the 100,000-man coalition invasion ground force of V Corps proceeded north. It consisted of three separate routes of advance from Kuwait. British forces on the far right under 1st Armored Division commander Major General Robin Brims were assigned the task of securing the Shatt el-Arab waterway and important Shi'ite city of Basra, Iraq's second largest. At the same time, Lieutenant General James Conway's 1st Marine Expeditionary Force (MEF) in the center and Lieutenant General William Wallace's U.S. Army's V Corps to the west would drive on the Iraqi capital of Baghdad, 300 miles to the north. The 3rd ID, with the 7th Armored Cavalry Regiment leading, made the most rapid progress, largely because it moved through more sparsely populated areas.

In the center part of the front, the 1st MEF, carrying out the longest march in its storied history, skirted to the west of the Euphrates River, through the cities of Nasiriya and on to Najaf and Karbala. Key factors in the allied success were coalition air power (Iraqi aircraft and helicopters never got off the ground), including Apache helicopter gunships and the highly resilient tank-busting A-10 Thunderbolt II, the rapidity of the advance, and the ability of coalition troops to fight at night.

The Marines were successful in seizing by *coup de main* the oil fields north of Basra, some 60 percent of the nation's total with the key refineries. Having secured the Shatt el-Arab, and wishing to spare the civilians and hopeful of an internal uprising, the British did not move into Basra itself. They were not actually encamped in the city until the night of April 2. In the meantime they imposed a loose blockade and carried out a series of raids into Basra to destroy symbols of the regime to demoralize the defenders and to convince them that they could move at will. At the same time they distributed food and water in an effort to convince the inhabitants that they came as liberators rather than conquerors.

U.S. Special Forces secured airfields in western Iraq, and on the night of March 26, 1,000 members of the 173d Airborne Brigade dropped into Kurdish-held territory in northern Iraq to work in conjunction with lightly armed Kurdish forces to open a northern front and threaten the key oil production center of Mosul. U.S. Special Forces also directed air strikes against the Islamic Ansar al-Islam camp in far northeastern Iraq on the Iranian border.

A number of Iraqi divisions, moved into position to block the coalition drive north, largely evaporated with many of their personnel deserting. Meanwhile, so-called Saddam Fedayeen, or "technicals," irregulars often wearing civilian clothes, carried out attacks with civilian vehicles mounting machine guns and rocket-propelled grenades on supply convoys along the lines of communication (LOCs) from Kuwait north, which came to be dubbed "Ambush Alley."

On March 26, U.S. 7th Cavalry regiment and 3rd ID elements defeated an Iraqi force near Najaf in the largest battle of the war thus far, killing some

450 Iraqis. On March 28, with U.S. forces some 100 miles south of Baghdad, there was an operational pause because of a fierce sandstorm extending over March 25 and 26 and the need for some army units to resupply.

The Iraqi leadership, meanwhile, repositioned the six Republican Guard divisions around Baghdad for a defense of the capital. As some of these divisions moved to take up new positions south of the city, they came under heavy air attack and lost much of their equipment. The coalition advance quickened again during April 1 and 2, following the serious degrading of the Baghdad and Medina Republican Guard Divisions.

On April 3 U.S. forces reached the outskirts of Baghdad and over the next two days secured Saddam International Airport, some 12 miles from the city center. The speed of their advance allowed U.S. forces to take the airport with minimal damage to its facilities and it soon became a staging area. By that date also the Iraqi people sensed the shift of momentum and an imminent coalition victory. Advancing U.S. troops reported friendly receptions from civilians and with increasing surrenders of Iraqi troops, including a reported 2,500 Republican Guards north of Kut on April 4.

By April 5 the 3rd ID was closing on Baghdad from the southwest, the Marines from the southeast, and the 101st Airborne Brigade was preparing to move in from the north. Baghdad was in effect under a loose blockade, with civilians allowed to depart. On that day also, the 2nd Brigade of the 3rd ID pushed through downtown Baghdad in a three-hour-long operation, inflicting an estimated 1,000 Iraqi casualties. This proved a powerful psychological blow to the Iraqi regime, which had claimed U.S. forces were nowhere near the city and that it still controlled the international airport. It also led to an exodus of many Ba'ath Party officials and Iraqi military personnel.

This process was repeated on April 6 and 7. In a fierce firefight on April 6, U.S. forces killed an estimated 2,000 to 3,000 Iraqi soldiers for one killed of their own. On April 7 three battalions of the 3rd ID remained in the city. The next day Marine elements moved into southeastern Baghdad. With the 101st Airborne closing on the city from the northwest and the 3rd ID from the southeast, the ring around the capital was closed. On April 9 resistance collapsed in Baghdad as Iraqi civilians assisted by U.S. Marines toppled a large statue of Saddam Hussein. There was still fighting in parts of the city as diehard Ba'ath loyalists sniped at U.S. troops, but Iraqi government central command and control had collapsed.

On April 10 following the collapse of resistance in Baghdad, a small number of Kurdish fighters, U.S. Special Forces, and the 173d Airborne Brigade liberated Kirkuk. The next day Iraq's third largest city of Mosul fell when the Iraqi V Corps commander surrendered some 30,000 men. Apart from some sporadic shooting in Baghdad and massive looting there and in other cities, the one remaining center of resistance was Saddam Hussein's ancestral home of Tikrit.

On April 12 the 101st Airborne relieved the Marines and 3rd ID in Baghdad, allowing them to deploy northwest to Tikrit. Meanwhile, the 173d Airborne Brigade took control of the northern oil fields from the Kurds in order to prevent any possibility of Turkish intervention. The battle for Tikrit failed to materialize. Hussein's

stronghold collapsed, and on April 14 Allied forces entered the city. That same day the Pentagon announced that major military operations in Iraq were at an end; all that remained was mopping up. To the end of April the coalition had suffered 139 American and 31 British dead. The coalition reported that 9,200 Iraqi military personnel had also been slain, along with 7,299 civilians, the latter figure believed by many observers to be far too low.

On May 1, 2003, President Bush visited the U.S. aircraft carrier *Abraham Lincoln* off San Diego, the carrier having just returned from a deployment to the Persian Gulf. There the president delivered his now infamous "Mission Accomplished" speech, broadcast live to the American people. Bush's characterization of the war proved premature. The administration had given virtually no thought to the postwar occupation of Iraq and long simmering tensions between Sunni, Shi'ite, and Kurds erupted into sectarian violence. A series of mistaken Bush administration policy decisions, including disbanding the Iraqi Army, abetted the poor security situation, as angry Sunnis, supported by volunteers from other Arab states, took up arms and launched suicide attacks against Iraqi civilians and the U.S. occupiers. Unguarded ammunition dumps provided plentiful supplies for the improvised explosive devices (IEDs) that claimed growing numbers of allied troops.

Spencer C. Tucker

See also: Bush, George Herbert Walker; Bush, George Walker; Global War on Terrorism (GWOT); United States Marine Corps; Weapons of Mass Destruction (WMDs)

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R

RAND CORPORATION

Independent, nonprofit think tank founded jointly by the U.S. Army Air Forces (AAF) and the Douglas Aircraft Company in 1945 to ensure the continuation of technological advancements begun during World War II. Since its foundation, the RAND Corporation (RAND is short for "Research and Development") has served both the public and private sectors. Although it mostly addressed the defense concerns of the U.S. Air Force during its initial years, it was later expanded to tackle social problems as well. RAND played a significant role in the advancement of technology during the Cold War.

Project RAND, precursor to the RAND Corporation, began in October 1945 as the brainchild of Henry "Hap" Arnold, commanding general of the U.S. AAF. He worked in collaboration with a number of influential individuals from both the public and private sectors—including Edward Bowles, Donald Douglas, and Major Generals Lauris Norstad and Curtis LeMay—to establish an institution that could successfully coordinate efforts among the military, government, industry, and academe to promote the development of science and technology.

In March 1946 Project RAND was inaugurated as a division of the Douglas Aircraft Company. RAND reported to the U.S. AAF's deputy chief of air staff for research and development, which was established in December 1945 and headed by LeMay. The RAND staff grew to include several fields including mathematics, engineering, aerodynamics, physics, chemistry, economics, and psychology. RAND produced its first study in May 1946 and has since produced many volumes of original research.

Project RAND split from Douglas Aircraft in May 1948 and thereafter became the RAND Corporation, a nonpartisan research and design enterprise. Both its goals and purpose are explicitly set forth in its articles of incorporation, which seek "to further and promote scientific, educational and charitable

purposes, all for the public welfare and security of the United States."

The exigencies of the Cold War, more than anything else, dictated RAND's research agenda during its first years. Its directors' insistence on cross-fertilization and free inquiry culminated in innovative approaches to defense problems that included systems analysis and game theory. Essential to RAND's innovation was its interdisciplinary approach to problem solving. RAND is also responsible for having created a number of precursors to modern-day technologies that were essential to both the space age and the computer age. These innovations ranged from infrared detection, missile targeting, and reentry technology to video recording, computers, and the Internet.

In the 1960s RAND began to move beyond defense matters, addressing domestic policy issues as well. This was in part because of a decrease in U.S. Air Force contracts as other research and design organizations emerged. Moreover, the armed forces had learned much about how to conduct their own research from years of collaboration with RAND. Aside from science and technology, RAND began to specialize in education, civil and criminal justice, the environment, population studies, terrorism, and transportation. Despite this shift, however, in the 1990s two-thirds of RAND's research focused on national security issues.

R. Matthew Gildner

See also: Arnold, Henry Harley "Hap"; Cold War; United States Air Force; Weapons, Space; World War II

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REAGAN, RONALD WILSON (1911–2004)

U.S. politician and president of the United States (1981–1989). Born on February 11, 1911, in Tampico, Illinois, Ronald Reagan graduated from Eureka College, worked as a sports announcer, and in 1937 won a Hollywood contract with Warner Brothers, eventually appearing in 53movies. As president of the Screen Actors Guild during the late 1940s and early 1950s, the once liberal Reagan purged alleged communists and veered strongly to the Right. His politics grew increasingly conservative in the late 1950s and early 1960s.

In 1966 the genial Reagan won the first of two terms as the Republican governor of California. During his campaign he supported U.S. intervention in Vietnam and condemned student antiwar protesters. He soon became one of the leading figures of the increasingly powerful Republican Right, supporting deep cuts in taxes and domestic expenditures, high defense budgets, and a strong anticommunist international posture, positions he affirmed while seeking the Republican presidential nomination in 1976 and 1980.

In 1980, when Reagan defeated Democratic incumbent President Jimmy Carter, the United States was suffering from spiraling inflation and high unemployment. In Iran radical Muslims had overthrown Shah Mohammad Reza



During his national security speech on March 23, 1983, President Ronald Reagan speaks to the nation regarding the Strategic Defense Initiative, proposing intensive research on a space-based antiballistic missile defense system (popularly known as "Star Wars") that would destroy Soviet missiles before they reached their target. (Ronald Reagan Library)

Pahlavi in 1979, sending oil prices soaring, and for more than a year held U.S. diplomatic personnel hostage in Tehran. An almost simultaneous Soviet-backed coup in Afghanistan intensified a sense of American impotence, as did communist insurgencies in Central America and Africa. Reagan opposed compromise with communism. Believing firmly in the American way of life and convinced that an American victory in the Cold War was attainable, the ever-optimistic Reagan used blatantly triumphalist, anti-Soviet rhetoric, famously terming the Soviet Union an "evil empire."

Reinvigorating the post-Carter Military-Industrial Complex, Reagan purposefully engaged the Soviets in an arms race whereby he and his advisors hoped that American technological and economic superiority would strain the Soviet economy. In 1982 and 1983 the president issued directives intended to deny the Soviets Western credits, currency, trade, and technology and to embargo Soviet exports of oil and natural gas to the West. The Reagan administration hiked the defense budget from $171 billion to $376 billion between 1981 and 1986, hoping to force the Soviets into bankruptcy and to position the United States better to combat communism around the world. In 1983 Reagan announced that the United States would begin research on an expensive new ballistic missile defense system, the Strategic Defense Initiative (SDI), popularly known as Star Wars, to intercept and destroy incoming nuclear missiles. If successful, this program, which contravened several existing arms control treaties, would have provided the United

States with substantial protection against a Soviet nuclear attack, thereby destabilizing the nuclear balance and quite possibly triggering a new arms race.

Breaking with Carter's policies, Reagan also deliberately de-emphasized human rights, consciously supporting dictatorships provided they were pro-American while assailing human rights abuses within the Soviet sphere. Covert operations intensified as the United States offered support to anticommunist forces around the world, providing economic aid to the dissident Polish Solidarity trade union movement and military and economic assistance to antigovernment rebels in Angola, mujahideen guerrillas in Afghanistan, and the anti-Sandinista Contras in Nicaragua. Efforts to overthrow the existing Nicaraguan government included Central Intelligence Agency (CIA) mining of ports and harbors. When Congress responded by passing the Boland Amendment of 1984, forbidding funding for Nicaraguan covert actions, the Reagan administration embroiled itself in an ill-fated secret enterprise to sell arms to Iran—thereby evading its own embargo but, officials suggested, enhancing the political standing of Iranian moderate elements—and using the proceeds to aid the Nicaraguan Contras. Revelations of these illegal activities and his probable complicity in them embarrassed Reagan during his second term.

They did not, however, compromise Reagan's ability to reach unprecedented new understandings with the Soviet Union. Notwithstanding his bellicose rhetoric and a near infatuation with prospective nuclear war according to some Reagan administration officials, in practice Reagan was surprisingly pragmatic and cautious. In potentially difficult guerrilla settings, his administration favored covert operations, preferably undertaken by surrogates such as the Afghan mujahideen or the Nicaraguan Contras, over outright military intervention. Wars were kept short and easily winnable, as in the small Caribbean island of Grenada in 1983 when American troops liberated the island from Marxist rule. When, almost simultaneously, radical pro-Syrian Druze Muslims bombed the Beirut barracks of an American peacekeeping force in Lebanon, killing 241 American soldiers, the United States quickly withdrew. In 1986 suspected Libyan involvement in terrorist incidents provoked only retaliatory American surgical air strikes on Tripoli.

Despite campaign pledges to the contrary, Reagan did not shun the People's Republic of China (PRC) or restore American relations with the Republic of China (ROC, Taiwan). In 1982 the Reagan administration reached an understanding with China on Taiwan, after which the Chinese gave some support to the Afghan rebels. Sino-American trade increased and Reagan made a 1984 state visit to Beijing. By 1984 domestic politics suggested that the president moderate his anti-Soviet line. He faced a reelection campaign against a liberal opponent, Walter Mondale, just as his nuclear buildup and the stalemating of inconclusive arms control talks had generated substantial public support in both America and Europe for a nuclear freeze. In September 1984 Reagan proposed combining all major ongoing nuclear weapons talks into one package, and Soviet leaders soon agreed.

Reagan's mellowing coincided with the culmination of long-standing Soviet economic problems. Empire imposed

added burdens on the Soviets as military spending rose, diverting funds from domestic programs. Most countries in Eastern Europe still resented Soviet domination. In Poland the Solidarity movement proved remarkably persistent, undercutting Soviet control. Assertive Soviet policies in Africa and Latin America carried a high price tag also, while the decade-long Afghan intervention embroiled Soviet troops in a costly and unwinnable guerrilla war.

In 1985 the young and energetic Mikhail Gorbachev became the general secretary of the Communist Party of the Soviet Union (CPSU). He immediately sought to address Russia's problems and reform the communist economic and social system, an uphill battle given the immense burdens of the Soviet military. In addition, the costly SDI program that Reagan had recently proposed was likely to demand massive further investment.

American and European leaders were initially wary of Gorbachev's overtures, but even so, he quickly won great popularity. After meeting Gorbachev, Margaret Thatcher, the hard-line British Conservative prime minister whom Reagan had long found to be a political soul mate, urged her colleague to work with the Soviet leader, and Reagan was more willing than many of his advisors to trust Gorbachev. Domestic economic factors may also have impelled Reagan toward rapprochement. Deep tax cuts meant that heavy government budget deficits financed the defense buildup in the 1980s, and in November 1987 an unexpected Wall Street stock market crash suggested that American economic fundamentals might be undesirably weak. Reagan had several summit meetings with Gorbachev, and in 1987 the superpowers signed the Intermediate-Range Nuclear Forces (INF) Treaty, eliminating all medium-range missiles in Europe and imposing strong verification procedures. This marked the beginning of a series of arms reduction agreements, continued under Reagan's successor George H. W. Bush, and of measures whereby the Soviet Union withdrew from its East European empire, and by 1991 allowed it to collapse. Although Bush's presidency saw the culmination of these developments, it was Reagan who first perceived their potential.

Reagan, the oldest U.S. president in history, left office in 1989. After a decade-long battle with Alzheimer's, he died of pneumonia at his home in Los Angeles, California, on June 5, 2004. Reagan's impressive state funeral in Washington, D.C., paid tribute to him as the American president whose policies effectively helped to end the Cold War on U.S. terms.

Priscilla Roberts

See also: Arms Race; Bush, George Herbert Walker; Carter, James Earl, Jr.; Central Intelligence Agency (CIA); China, People's Republic of (PRC); Cold War; Soviet Union (USSR); Strategic Defense Initiative (SDI); Taiwan (Republic of China, ROC); United Kingdom (UK); Vietnam War; Weapons, Nuclear

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RESEARCH AND DEVELOPMENT/THINK TANKS/UNIVERSITY RESEARCH

Research and development of military technology has occurred in many locations, utilizing the work of private individuals, government employees, corporations, and university academics. Likewise, public policy regarding military forces has been developed and influenced by both government and private institutions, including "think tanks." A think tank is a research and advocacy group, usually comprised of well-educated individuals from a broad variety of backgrounds, including academia, public service, and the business sector. In the period since World War II, military technological research and development in the United States has come increasingly from nongovernmental sources, and the acquisition and usage of military technology has come to rely upon the expertise provided by advisors drawn from American universities and government-funded think tanks.

Prior to World War I the vast majority of military technological innovation came from the efforts of private individuals rather than government-sponsored research projects. For example, the development of new weapons adopted by the United States Army throughout the 19th century came almost entirely from private companies hoping to obtain lucrative production contracts through the development and demonstration of new items. Although some innovation occurred at government arsenals at Springfield, Massachusetts, and Harper's Ferry, Virginia, such improvements typically required an immense amount of time and effort for an evolutionary change. While the Springfield Arsenal is often credited with the development of the "American System" of manufacture, relying upon the production of firearms with interchangeable parts to increase production speed and dependability, this concept required decades to be put into practice, and drew upon contemporary production innovations in other industries. The truly revolutionary changes in weapons design during the century came from private developments which were then purchased or licensed by the United States government.

During the American Civil War thousands of private individuals offered suggestions for weapons that could potentially win the war. Most such proposals amounted to little in the way of government purchases, although a few major arms manufacturers, such as Colt, Smith & Wesson, and Winchester, managed to secure massive federal contracts to produce weapons for the Union Army. President Abraham Lincoln received hundreds of individuals at the White House, some of whom brought prototypes of their designs to demonstrate the efficacy of their inventions. Lincoln regularly tested the most promising models,

often personally firing them behind the Treasury Building. If he was encouraged by the performance of the test, he would often order the Army Ordnance Department to investigate the possibility of incorporating the new idea.

After the end of the Civil War, American military innovation entered a stagnant period, inadvertently avoiding the massive arms race that plagued Europe at the same time. Although American innovators experimented with some weaponry, they found their best markets abroad. The U.S. Navy conducted some tests of armor plating to determine the optimal alloy for new warship construction, but even these tests were poorly funded and occasionally produced indeterminate results. Other American-made military innovations, largely ignored by the U.S government, quickly transformed the military forces of Europe. The Maxim Gun, developed in 1884 by Hiram Maxim, brought almost no interest from the U.S. Army despite its status as the first true machine gun, a weapon that dominated European battlefields for the next several decades. Likewise, the heavier-than-air flight experiments carried out by the Wright brothers did not excite the interest of American military leaders, despite the obvious military applications of their airplanes.

During the period leading up to World War I, much of the research leading to new weaponry resulted from investigations into new manufacturing processes. In particular the chemical industry, which proved essential during the war, created a number of products that could serve multiple roles, including military usage. The chemical weapons used on the Western Front during the conflict all had some degree of civilian industrial applications, even though they were rapidly adapted to offensive action against enemy forces. The sheer size and intensity of World War I led belligerents in Europe to call for academic researchers to contribute to the war effort through modifications to scientific advances. During the ensuing two decades, many academics criticized their colleagues for essentially transforming university facilities into weapons laboratories, possibly corrupting the idealistic nature of university research.

During the interwar period in the United States, university scientists and private corporations increased their ties, leading publicly funded research developments to become consumer products. In the 1920s universities grew in size and funding, reflecting the general economic growth of the nation as a whole. However, with the onset of the Great Depression in 1929, state funding for higher education quickly declined, leading researchers to seek new funding sources for their innovations. In some fields corporations could provide the necessary financial resources to continue scientific investigations, in other fields research languished for the lack of significant patronage. Like every other sector of the American economy, higher education cut back expenditures, including a net reduction in the academic faculty of the nation's colleges and universities.

With the outbreak of World War II, the United States government developed a keen interest in scientific advances once more. Whereas the previous world war had often been dubbed the "chemists' war," the new conflict could be considered the "physicists' war." Many of the key technological developments of the war, including the atomic bomb, the proximity fuse, and jet propulsion, depended

upon research that had commenced before the conflict started. However, with governments on both sides of the war opening their coffers to academics as never before, research that had largely been theoretical during the interwar years quickly became reality. In the United States even before American entry into the war, the federal government took steps to harness the intellectual potential of American researchers. In 1940 Roosevelt ordered the formation of the National Defense Research Council (NDRC), an oversight body that incorporated, among others, the presidents of Harvard University, the Massachusetts Institute of Technology, and the Carnegie Institute. Pleased with the initial results of the NDRC, but frustrated by the intervention of layers of bureaucracy, Roosevelt signed Executive Order 8807 on June 28, 1941. This order created the Office of Scientific Research and Development under Vannevar Bush. Bush controlled virtually unlimited funds and resources, and reported directly to the president, while overseeing scientific research into every aspect of military service.

The most well-known of the university research initiatives of the war—the Manhattan Project—was also the most closely guarded secret of the war. Security on the Manhattan Project proved so tight that Vice President Harry S. Truman remained ignorant of the project until after his succession to the presidency after the death of Franklin D. Roosevelt. The Manhattan Project brought together the best physicists from a wide variety of American institutions, under the leadership of the scientific director of the project, J. Robert Oppenheimer, a professor of physics at the University of California–Berkeley. The military director of the project, Major General Leslie R. Groves, served primarily to maintain the secrecy of the project and to manage the competing personalities that drove the research. The project's goal—the creation of a functional atomic bomb—eventually cost nearly $2 billion, employing more than 100,000 people in a project spread across 30 research sites and 3 primary production centers. A project of this scale could not be undertaken by a single corporation, nor did the government have the requisite scientific resources to force such a breakthrough. Only by incorporating the resources of industry, academia, and the government could the project succeed, culminating in the production of 3 functional weapons.

A lesser-known innovation relying upon academic wartime volunteers, the proximity fuze in many ways had a greater effect upon the outcome of World War II, if only because it reached mass production early enough to be utilized in both Europe and the Pacific. The proximity fuze improved greatly upon the timed and contact fuzes, allowing a shell to detonate when it neared a moving target, eliminating much of the guesswork from antiaircraft gunnery. It could also be programmed to detonate when it reached a certain distance from the ground, making for devastating antipersonnel usage when finally approved for use on land in the fall of 1944. Previously its use had been restricted to naval applications, out of fear that an unexploded shell might be recovered by enemy forces and copied for use against Allied units. Unlike the Manhattan Project, which occurred entirely on property owned by the federal government, the proximity fuze was developed primarily at the Johns Hopkins University Applied Physics Laboratory, under the direction

of Professor Merle Anthony Tuve. The fuzes eventually incorporated a variety of triggers, including magnetic, acoustic, optical, and radio frequency versions. Vannevar Bush credited proximity fuzes with ending both the Japanese kamikaze threat and the rain of German V-1 bombs upon England, both through the increased effectiveness of artillery shells.

In the postwar era, American academics did not simply return to their private research and teaching interests. The dawning of the atomic age had created an entirely new scale of warfare, and the Cold War provided a continual enemy in the Soviet Union. When Soviet scientists detonated the first non-American atomic bomb in 1949, they not only brought the nuclear monopoly of the United States to an end, but also instituted a scientific arms race to develop newer weapons and delivery systems, ostensibly in the name of national defense. As such the American military felt the need to remain ahead in scientific innovation and weapons engineering. Due to the immense size of the Soviet military, the only viable option to maintain at least parity in military capability was to rely upon superior technology, which would in turn require a permanent partnership between the military, academia, and defense contractors.

The higher education system in the United States underwent a massive growth in the immediate postwar period. The GI Bill, which offered financial assistance to veterans wishing to attend college, served to ease the transition of returning service personnel to the workforce by keeping millions of soldiers and sailors in the ranks of students. This necessitated a much larger number of schools and mandated that institutions would see a large rise in their student populations. It also guaranteed a steady flow of federal dollars, which allowed the construction of new facilities and the retention of additional faculty, as well as the pursuit of almost unlimited research projects.

In addition to the tuition dollars provided by the GI Bill, the federal government began to offer immense research grants to projects that might have military as well as civilian applications. Over time, major research universities became dependent upon federal research grants, which often have a built-in stipend for the general use of the university in addition to the funding for specific projects. Currently the federal government is by far the largest sponsor of scientific and engineering research in American universities. For all intents and purposes the military has an unlimited budget by university standards, allowing programs that would otherwise be beyond even the most heavily endowed institutions.

Naturally not all research, particularly that of military value, can be conducted in the largely open atmosphere of the modern university system. As such the federal government operates a number of major research laboratories, employing civilian scientists and engineers in the pursuit of an extremely broad variety of technological enterprises. The preponderance of federal laboratories not only creates new research breakthroughs, but also provides a market for graduate schools in the science and engineering fields, encouraging universities to create such programs in exchange for further financial support. The largest such institution is the Los Alamos National Laboratory (LANL), a multidisciplinary research institution in New Mexico that conducts highly classified research in the

fields of national security, weapons design, space exploration, and medicine, as well as more general investigations into scientific and technological development. With an annual budget of more than $2 billion, and a workforce numbering more than 15,000, LANL has far more resources than any traditional academic institution in the world. Scholars travel from around the globe to work on specific projects, and LANL maintains strategic partnerships with a large number of universities. It also serves as one of only two locations in the United States where nuclear weapons design occurs.

Another form of organization that links academia with government institutions, particularly the military, is the think tank. The history of think tanks can be traced to the 19th century, with the founding of the Institute for Defence and Security Studies in 1831 in Great Britain. This group offered military consulting and advice to the British government, incorporating former military officers, prominent politicians, and leading scholars. Over the next eight decades, similar institutions began to appear elsewhere in Europe and the United States. After World War I the number of such advisory and advocacy groups, many doling out consultation and research to political and military leaders, rapidly grew in Europe. In the United States such institutions were the natural outgrowth of the Progressive movement, which advocated bringing scholars and managers together to contribute to the formulation of public policy. A major explosion of American think tanks occurred immediately after World War II, at least in part to influence the national defense issues created by the Cold War. This growth has caused the United States to have both the largest raw number of think tanks of any nation, and also the most diverse types of think tanks in the world.

The modern think tank is typically funded by private donors. Many such organizations have to engage in almost constant fundraising to remain in existence, leading a great number of think tanks to engage in research and advocacy related only to a single, controversial issue. Single-issue think tanks are much more likely than government institutions to propose radical concepts, due to their freedom from public scrutiny or responsibility for implementing their ideas. These proposals may take the form of informational publications, such as occasional papers, books, and policy pamphlets, to massive advertising campaigns designed to promote a single issue. Most think tanks have at least one internally reviewed scholarly journal, which serves as a means to publish research and analysis for a broader audience, sharing ideas, and pushing policy goals. Typical think tanks have permanent personnel who administer all of the functions of the organization, including publications, fund-raisers, and the recruitment of new members. Almost every think tank has associated members, such as academics, government employees, or business leaders, who can serve to draw attention to the institution and provide the theoretical underpinning of the organization's proposals.

Some major think tanks are government-funded enterprises designed to bring together civilian and military leaders in an academic setting to propose, debate, and recommend policy concepts. Some of the most prominent examples include the Institute for National Security Studies; the National

Defense University; the U.S. Army War College; U.S. Naval War College; and U.S. Air War College. Formally named Federally Funded Research and Development Centers (FFRDCs), these organizations draw government, industry, academic, and military resources into a single location in the pursuit of a single, long-term goal beyond the reach of any of the contributors on an individual scale.

The most well-known think tank related to military research in the United States is the RAND Corporation, founded in 1946. It was initially created to provide research and objective analysis of systems to the U.S. military. The founders, Donald Wills Douglas and Henry H. Arnold epitomized the cooperation of the military and industrial sectors. Douglas, the founder of Douglas Aircraft Company in 1921, had worked closely with the U.S. Army Air Forces during World War II to develop a variety of military aircraft. In the postwar era many of the heavier aircraft could be easily converted to civilian applications. Arnold, the only officer in American history to reach five-star rank in two different services, worked closely with Douglas and other industrialists to rapidly develop the hardware necessary for the war. The RAND Corporation specializes in the creative application of theoretical concepts from the sciences to operational research and manufacturing. RAND soon began to apply its research framework to other national policy issues, although approximately one half of its research still revolves around national security issues.

Other major think tanks that are primarily devoted to national security and defense issues include the American Security Council; the Arms Control Association; the Center for Strategic and International Studies; the Center for Defense Information; the Committee for National Security; the Foreign Policy Research Institute; the Institute for Foreign Policy Analysis; the Institute for Security and Cooperation in Outer Space; the Institute for Defense Analysis; and the Foreign Policy Institute of Johns Hopkins University. These think tanks range from extremely conservative approaches to foreign policy and military development, which typically call for large defense budgets and standing military forces, to liberal institutions pressing for nonmilitary solutions to world conflicts and the reduction of military arsenals.

Paul Springer

See also: Arms Manufacturers/Defense Industry Contractors; Arms Race; Arnold, Henry Harley "Hap"; Bush, Vannevar; Cold War; Defense Industry Lobbyists; Los Alamos, New Mexico; Manhattan Project; RAND Corporation; Research and Development/Think Tank; Roosevelt, Franklin Delano; Scientific Research and Development, Office of (OSRD); Soviet Union (USSR); Truman, Harry S. ; United States Air Force; United States Army United States Navy; Weapons, Air; Weapons, Land; Weapons, Nuclear; Weapons, Sea; Weapons, Space; World War I; World War II

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REVOLT OF THE ADMIRALS

The "Revolt of the Admirals" was the name given to a dispute that surfaced in 1949 during which several U.S. Navy admirals and senior civilian officials publically disagreed with the president of the United States and the secretary of defense regarding strategic planning and force development priorities in the early Cold War era. The tension and resistance generated by the disagreements reached such an unusual level and generated such wide-reaching repercussions that it was metaphorically labeled as a "revolt" by commentators to emphasize the degree of intense interservice conflict. The dispute became so acrimonious that several very senior officers, including the Chief of Naval Operations Admiral Louis E. Denfield and the Secretary of the Navy John L. Sullivan either resigned or were fired.

The Revolt was fundamentally caused by broad disagreement over future weapons procurement and service roles in national defense amid an era of significant financial retrenchment between the end of World War II and prior to the outbreak of the Korean War. It was also a product of varying degrees of service resistance to the 1947 integration of the armed services into the Department of Defense. These disputes were accentuated by the stridency with which the recently independent U.S. Air Force claimed the premier role in national security and lobbied for an arsenal of nuclear-armed B-36 "Peacemaker" "strategic" heavy bombers to deter a future Soviet nuclear first strike. Navy admirals forcefully countered that World War II had unequivocally demonstrated the supremacy of the aircraft carrier over the heavy bomber and instead sought procurement priority for large, novel "super carriers" from which nuclear-armed heavy bombers could be flown and pushed for immediate construction of the first of these vessels, the *USS United States.*

In April 1949 the new Force Secretary of Defense Louis Johnson, who favored the Air Force position, abruptly cancelled the *USS United States,* thereby precipitating the resignation of several admirals. He also proposed transferring U.S. Marine Corps aviation assets to the Air Force, a plan he subsequently abandoned in the face of Congressional opposition. Unidentified naval officers initiated a smear campaign to discredit the Air Force's B-36 bomber and accused Johnson of a conflict of interest. An inflammatory article by Rear Admiral Daniel Gallery against Johnson, the Air Force, and the B-36 cost him future promotion and ultimately ended his career. A subsequent Congressional investigation cleared Johnson of any wrongdoing in the procurement process,

but censured him for unilateral and premature decision making with inadequate Congressional oversight. A civilian employee of the navy who leaked classified material about limitations of and problems with the B-36 bomber was also fired as a result of this enquiry. In addition Congress denounced the forced resignation of Chief of Naval Operations Admiral Denfield as retaliation for his testifying before the legislature.

The Revolt ultimately torpedoed the navy's "super carrier" concept and thereafter it abandoned efforts to acquire both the Air Force strategic bombing mission and heavy bombers in order to marry them to aircraft carriers, and instead subsequently built "smaller" attack carriers that focused on acquiring air superiority and providing multimission capabilities. The Revolt also precipitated wide-ranging and enduring debate on the role of nuclear weapons in U.S. national security policy, the role of strategic bombing, as well as the unification of the branches of service. The respective Air Force and Navy arguments over the inherent superiority of strategic bombers and aircraft carriers have continued ever since, but without the same level of rancor and open conflict manifest during the Revolt of the Admirals.

Russell Hart

See Also: Cold War; Department of Defense; Johnson, Louis Arthur; Korean War; United States Air Force; United States Marine Corps; United States Navy; Soviety Union (USSR); Weapons, Nuclear; World War II

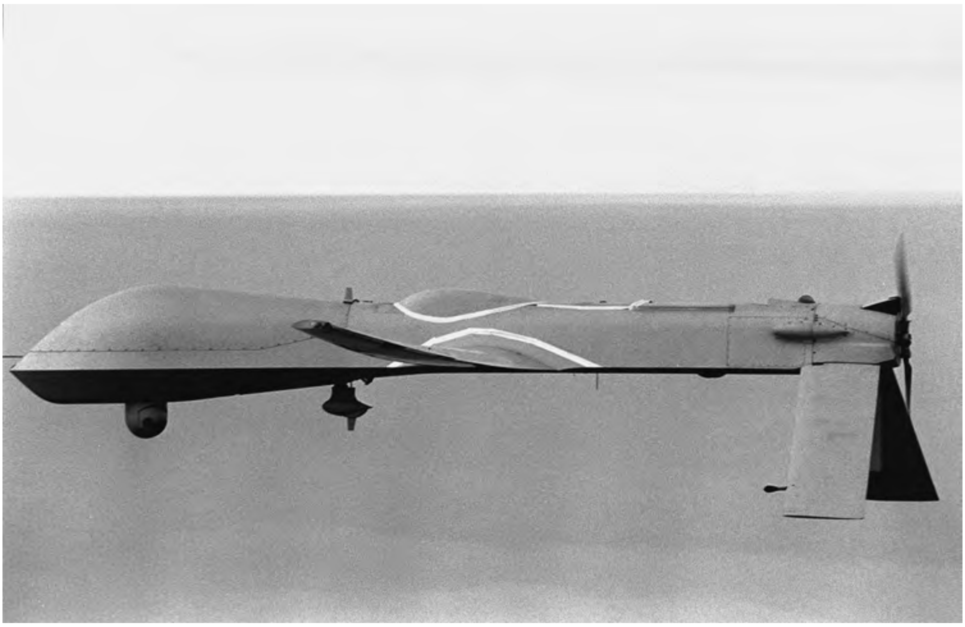
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REVOLUTION IN MILITARY AFFAIRS (RMA)

Defense analyst and scholar Colin S. Gray in 2006 defined an RMA as "a radical change in the conduct and character of war." Past RMA have generally resulted from an innovative application of technology to warfare and change in the organization and doctrine of military forces. In a conventional conflict between two similarly sized and equipped forces, past RMA have sometimes led to a dramatic victory for the side benefiting from an RMA. In particular, two historical examples of RMA have been consistently offered by historians: (1) the German organization in the 1930s of Panzer divisions (and an entire Panzer Group) with a corresponding concept of "Blitzkrieg" that resulted in the decisive defeat of France in 1940; and (2) the 1990–1991 Persian Gulf War in which the U.S. application of precision-guided munitions, stealth technology, cruise missiles, an improved C3I system (command, control, communications, and intelligence), and a strategy guided by the Army's AirLand Battle doctrine resulted in the swift defeat of Iraq's military forces. In recent years military professionals and military analysts have referred to an ongoing RMA, beginning at the end of the Vietnam War, encompassing the Persian Gulf War, and lasting to the present as "defense transformation." Significantly, the recent RMA has paralleled advances in the



A Predator unmanned aerial vehicle (UAV) flies on a simulated Navy aerial reconnaissance mission off the coast of California in 1995. The Predator provides real-time infrared and color video to intelligence analysts and controllers on the ground. (Department of Defense)

information revolution in the civilian world.

The contemporary RMA concept originated in the defense establishment of the former Soviet Union and from there spread to the U.S. defense community. The term originally used was "military-technical revolution." It was adopted by Soviet General Nikolai Ogarkov (later Chief of the General Staff) when describing the increasingly lethal nature of conventional warfare in the 1970s and 1980s. Andrew W. Marshall of the Office of Net Assessment (a think tank within the U.S. Department of Defense) borrowed the term from Ogarkov. Marshall would later opt for a term with less emphasis on technology and more on change in military organization and doctrine. Subsequently, the terms "military revolution" and "revolution in military affairs" were used alternately by the Department of Defense in the 1990s until eventually replaced by the term "defense transformation."

The basis of Ogarkov's observation of a "military-technical revolution" derived from the experience of U.S. forces near the end of the Vietnam War and the 1973 Arab-Israeli War. Both wars tested technologies later considered as essential to a revolution in warfare. These included the use of advanced sensors, precision-guided munitions (PGMs), stealth aircraft, and unmanned aerial vehicles (UAVs). Advanced sensors were most notably deployed in the Vietnam War along the demilitarized zone separating North and South Vietnam. PGMs in the form of electro-optical guided bombs (EOGBs) and laser-guided bombs (LGBs) performed effectively against infrastructure targets in North Vietnam,

especially toward the end of the war and most famously against Thanh Hoa Bridge in May 1972. The U.S. Air Force fielded its first "stealth" aircraft, the Lockheed YO-3B, in Vietnam in 1970. UAVs began service in Vietnam as early as 1964 in a reconnaissance role, capturing with high resolution photography detailed images of large swaths of land. Other aerial drones were employed to draw fire from surface-to-air missiles (SAMs) over North Vietnam, and some were fitted out with test versions of electronic countermeasure pods that jammed the guidance system of missiles. The use of these technologies encouraged theoretical speculation about the future of warfare in the Soviet Union and the United States.

Changes in doctrine and technological developments by the U.S. military in the 1970s and 1980s further laid the foundations for a "military-technical revolution." The 1973 Arab-Israeli War demonstrated the increased lethality of the new generation of Soviet and U.S. weapons: SAMs, antitank guided missiles (ATGMs), and antiship cruise missiles. General Don Starry of the Armor Center and School at Ft. Knox carefully studied the war and drew lessons for the Army. The creation of TRADOC in 1973 led to the creation of Army Field Manual FM 100-5 in 1976 with a new emphasis on "active defense." Secretary of Defense Harold Brown (1977–1981) championed an "offset strategy" to counterbalance the Warsaw Pact numerical advantage in tanks.

Technology certainly kept pace with the requirements of a more aggressive "offset strategy." An Air Force program in 1977, aptly titled Assault Breaker, led to development of a ground moving target indicator (GMTI) radar known as Pave Mover. The concept involved an aircraft with an advanced radar system flying in NATO territory, identifying and tracking Soviet mechanized formations, and relaying target information to other aircraft that would destroy the targets with air-launched standoff weapons. Simultaneously, the Army worked on a system known as the Standoff Target Acquisition System (SOTAS). The two programs were merged in 1982 as Joint Surveillance Target Attack Radar System (JSTARS). The eventual surveillance aircraft, based on a Boeing 707 airframe, possessed a radar system capable of locating tracked vehicles on the move at a distance of 200 to 250 miles. Air superiority aircraft, the F15 *Eagle* (operational in 1972) and F16 *Fighting Falcon* (operational in 1976), supported the new concept: "seeing" deeper and striking deeper with greater accuracy on the conventional battlefield.

During the Reagan Administration (1981–1989), the Army under General Don Starry now as commander of TRADOC revised again its doctrine in the 1982 edition of FM 100-5. The AirLand Battle doctrine called for offensive action and favored deep strikes, maneuver, and surprise. Together with the newly structured JSTARS, the AirLand Battle doctrine was complimented by the appearance of the "Big Five" in the 1980s: (1) the M1 Abrams tank (with enhanced protection), (2) the Bradley Infantry Fighting Vehicle (with TOW antitank missile), (3) the AH-64 Apache attack helicopter (with Hellfire antitank missile), (4) the UH-60 Blackhawk troop-carrying helicopter, and (5) the Patriot SAM defense battery. Infrared sights on the M1 Abrams, Bradley infantry fighting vehicle (IFV), and Apache attack helicopter gave U.S.

forces an enviable advantage in night-fighting capabilities and at actively disrupting a Warsaw Pact offensive. The Air Force added to this new array of weapon systems by the introduction of stealth aircraft capable of penetrating Soviet air defenses: the F-117 stealth fighter and the B-2 bomber. Although the F-117 remained highly secret until 1988, other developments did not go unnoticed by the Soviet Union. The Soviet Marshall Nikolai Ogarkov warned his comrades in 1984:

> Rapid changes in the development of conventional means of destruction and the emergence in the developed countries of automated reconnaissance-and-strike complexes, long-range high-accuracy terminally guided combat systems, unmanned flying machines, and qualitatively new electronic control systems make many types of weapons global and make it possible to sharply increase (by at least an order of magnitude) the destructive potential of conventional weapons, bringing them closer, so to speak, to weapons of mass destruction in terms of effectiveness.

The destructive potential of conventional weapons was seconded in the U.S. strategy by a nuclear modernization program, emphasizing survivable basing modes, enhanced guidance systems, intermediate range missiles, and the strategic defense initiative (SDI) or euphemistically "Star Wars." Yet what worried Marshal Ogarkov in 1984, and gave rise to the concept of a "military-technical revolution," was the overall improvement in the destructive potential of conventional weapons and methods of warfare.

The increasing effectiveness of cruise missiles (propelled by jet engines ever since the German pulse-jet V-1 during World War II) added another dimension to the emerging concept of "military-technical revolution" in the 1980s: networked command, control and communications, and intelligence (C3I). The Navy pioneered cruise missile development after World War II, and its efforts eventually led to the *Tomahawk* cruise missile that used an inertial guidance system (INS) and terrain contour matching (TERCOM) based on data from satellite imagery. The Soviets designed and deployed their own antiship cruise missiles and the long-range bombers to deliver them. Fighter screens with their radar and air-to-air missiles might destroy many of the Soviet missiles, but to provide a more thorough defense the Navy tested in 1973 the AEGIS combat system. The AEGIS system relied on multifunction phased-array radar that was capable of tracking more than 100 targets at one time. The computer-based AEGIS command and control system also allowed ships to engage more rapidly against aerial, surface, or submerged threats.

The vulnerability of the U.S. Navy's aircraft carrier battle groups to Soviet land-based bombers, particularly after the 1976 deployment of the Soviet TU-22 *Backfire* bomber, further led the Navy's development of a computer networked system designed to track Soviet warships and aircraft. A Navy computer network had evolved in the 1960s known as the Ocean Surveillance Information System (OSIS) and was enhanced by a new satellite-based electronic intelligence system (ELNIT) in 1976. An OSIS center was established at Suitland, Maryland, with regional facilities around the world,

and information was logged on a computer network known as Navy Tactical Data System, which was then collated and transmitted to fleet headquarters. Aircraft carriers were linked to OSIS centers by their Tactical Flag Communication Center (TFCC) and the information that they gathered with their own sensors was shared with OSIS. In 1981 Joint Operational Tactical System (JOTS) was rolled out to an increasing number of U.S. Navy ships—an upgrade of commercially available computers hosting the TFCC software package. By the 1990s a fleet wide command and logistic support system was operational, the Naval Tactical Command System Afloat (NTCS-A). The Navy's innovative efforts at computer networking paved the way for other services.

The Persian Gulf War may have signaled a potential RMA, but the war did not itself bring it about. Only 8 percent of munitions used in the Persian Gulf War were precision guided, although the technology had existed for nearly three decades. Stealth technology made its mark in the conflict as the F-117 stealth fighters proved their worth in the skies above Baghdad, often attacking with complete surprise. Gun camera footage of air-launched laser-guided bombs revealed their effectiveness to the public. Navy *Tomahawk* cruise missiles demolished Baghdad command and control centers and disrupted infrastructure targets such as electric power plants. Global Positioning System (GPS) enabled ground forces to operate cohesively across vast tracks of empty desert, garnering praise from the U.S. Army and the U.S. Marine Corps. Most notably, the impact of networked command and control systems and accelerated pace of operations demonstrated to some observers that an RMA had in fact taken place.

As a direct consequence of the lopsided U.S.-led coalition victory in the Persian Gulf War, the nascent RMA concept appeared vindicated and attracted significant attention from both military professionals and military affairs analysts. Among the early proponents of the RMA concept in the United States was Andrew F. Krepinevich, a protégé of Andrew W. Marshall in the Office of Net Assessment. In 1992 Krepinevich prepared a report for the Office of the Secretary of Defense/Net Assessment (OSD/NA) on "The Military-Technical Revolution: A Preliminary Assessment." The next year Marshall prepared a memorandum titled "Some Thoughts on Military Revolutions." The Fifth Annual Conference on Strategy held at the Army War College in April 1994 focused on the theme of RMA, and in 1995 Marshall testified before the Senate Armed Services Committee that "Innovations in technology make a military revolution possible, but the revolution itself takes place only when new concepts of operations develop and, in many cases, new military organizations are created." Within the military, support for the RMA concept came from Admiral William Owens and Vice Admiral Arthur Cebrowski. They emphasized the importance of networked command and control and information systems and the need for "dominant battle-space awareness." A document titled *Joint Vision 2010* appeared in 1997 that largely reflected the views of the proponents of RMA. Congress also funded the creation of a National Defense Panel to oversee the "broad transformation" of the U.S. military.

Although discussion of RMA began in earnest after the Persian Gulf War, each

service focused on a distinctive vision of the RMA with the Air Force and Navy making the stronger case for their share of the budget and the ground force services falling behind. The Navy emphasized "network-centric warfare" and acquiring information superiority over the opponent thus "lifting the fog of war." The Air Force stressed the importance of precision guided strikes and a concept of "effects-based operations," disrupting the enemy's system and creating paralysis. The Marine Corps took a different approach, highlighting their strengths and the need to prepare for "fourth-generation war" and combat irregular opponents in failed states. "The Army after Next Project" emphasized the role of a lighter more flexible Army in a large-scale conventional war. As U.S. Army War College Professor Steven Metz observed, the RMA concept enabled the services "to fight Desert Storm more effectively than the first time."

Under the George W. Bush Administration, and reflecting the impact of 9/11, defense transformation gathered momentum. The successful combination of precision strikes and Special Forces in Afghanistan provided a new "Afghan model" of warfare (60% of the munitions used were PGMs, particularly the newer, GPS-guided Joint Direct Attack Munition [JDAM]). The 2003 invasion of Iraq and the toppling of Saddam Hussein's regime enhanced further the RMA concept (68% of munitions were guided). UAVs were successfully employed not only for reconnaissance but for combat in both Afghanistan and Iraq. Even as an irregular threat began to emerge in both Iraq and Afghanistan that strained the RMA concept, defense transformation continued apace with the appearance notably of Secretary of Defense Donald H. Rumsfeld's *Transformation Planning Guidance* (April 2003) and Peter J. Schoomaker's *2004 Army Transformation Roadmap* (July 2004). The concept of RMA had not so much disappeared as become subsumed and central to a new discourse on force transformation.

The RMA concept also had roots in the academic historical community where the theory of "military revolution" had engaged scholars even before World War II. Basil Liddell Hart, for example, used the term "military revolution" in the 1920s to describe the changes in technology and doctrine resulting from the employment of mass artillery fires, the machine gun, and tank on the battlefields of World War I. In another early use of the term, historian Michael Roberts in 1956 suggested that there had been an early modern "military revolution" that resulted from gunpowder weapons, drill, and organizational change in the Dutch army in the 1590s—and later the Swedish army in the 1620s. In 1976 historian Geoffrey Parker stirred historical controversy by challenging and modifying Robert's "military revolution" thesis. Academic debate reached a crescendo in 1991 at a Society for Military History Conference. Borrowing the theory of punctuated equilibrium from evolutionary biology, Clifford Rogers proposed that military organizations and technology evolved incrementally, over long periods, but evolution was occasionally interrupted by short bursts of rapid change.

Building on Clifford Rogers' model of military change, Williamson Murray and MacGregor Knox proposed a model that differentiated the terms "military revolution" and RMA. In the *The Dynamics of Military Change* (2001), a

book sponsored by the Office of Net Assessment, Murray and Knox argued that past RMA pertained to military organizations alone and their effects remained within the military sphere. Military revolutions, on the other hand, not only have produced military organizational change, but also far-reaching socio-political consequences. Accordingly, they identified five historical military revolutions with associated RMA: (1) an original 17th century military revolution that led to the foundation of the modern state, (2) the French Revolution which merged mass politics and warfare, (3) the Industrial Revolution which led to more effective mobilization of the masses, (4) the World War I, which combined mass politics and warfare with the industrialization of war and set the pattern for 20th century warfare, and (5) the advent of nuclear weapons. For the most part, they concluded, military revolutions have originated outside the military sphere. Alongside these great military revolutions, following Murray and Knox, there have been lesser transformations "best conceptualized as 'revolutions in military affairs.'" Unlike military revolutions, they argued, RMA have been amenable to human direction.

Scholars debate whether the defeat of France in May to June 1940 or the U.S.-led coalition victory in the Persian Gulf War of 1990 and 1991 was the consequence of RMA or the result of circumstances. Some historians have chosen to reject the notion of military revolutions and RMA entirely. Influenced by postmodern theory, they question the validity of the concept of "modernity" and its principal characteristic "progress." Jeremy Black, for example, has chosen instead to focus on the uniqueness of all historical developments and the futility of drawing any meaningful patterns about historical change let alone arguing the usefulness of such perceived patterns for the present. Other scholars have pointed out that the principal problem from a military perspective with achieving RMA has been that the asymmetric advantage does not last very long. For example, the Soviet Union was able to trade space for time in the summer of 1941, preserving enough of their forces to rebound against the invading Germans. By the end of 1943 the Soviets were fully prepared to conduct their own "Blitzkrieg" to push the German invaders back to Berlin. From a diplomatic perspective, an RMA advantage demonstrated in a previous war may incline a nation to behave in a more unilateralist fashion, potentially undermining policy goals and thus squandering the strategic value of an RMA.

George Satterfield

See also: Armed Services Committees, U.S. Senate/House; Bush, George Herbert Walker; Department of Defense; North Atlantic Treaty Organization (NATO); Persian Gulf War I; Persian Gulf War II; Reagan, Ronald Wilson; Rumsfeld, Donald; Soviet Union (USSR); Strategic Defense Initiative (SDI); United States Air Force; United States Army; United States Marine Corps; United States Navy; Vietnam War; Weapons, Air; Weapons, Land; Weapons, Sea; World War II

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ROCKWELL INTERNATIONAL

Incorporated in 1919, Rockwell has been an influential part of the Military-Industrial Complex since its inception. Contributing aircraft and space technology, Rockwell was initially an industry leader in peripheral technologies such as communications, radar, and electronic devices. During the Cold War, Rockwell developed a space sciences division and was awarded contracts for missile and space technology, including advanced aircraft and space vehicles, culminating in the rockets that powered the Apollo space program (under the subsidiary Rocketdyne). Rockwell merged with North American in 1967 to form Rockwell North American; in 1973 it changed its name again to Rockwell International. In 1997 the company sold its aerospace and defense divisions to Boeing. In the 1990s Rockwell International was instrumental in the development of GPS technology. Today Rockwell International provides advanced communications technology and aircraft avionics to the U.S. military.

S. Mike Pavelec

See also: Boeing Company; Weapons, Air; Weapons, Space

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ROOSEVELT, FRANKLIN DELANO (1882–1945)

U.S. politician and president of the United States (1933–1945). Born at his family's Hyde Park estate in Dutchess Country, New York, on January 30, 1882, Franklin Roosevelt studied at the Groton School, Harvard College, and Columbia Law School. He then entered Democratic politics, consciously modeling his career upon his distant cousin President Theodore Roosevelt (whose niece Eleanor he married in 1905). After serving two terms as a state senator, in 1913 Roosevelt became assistant secretary of the U.S. Navy in the administration of President Woodrow Wilson. In World War I, Roosevelt was vehemently pro-Allied and interventionist, lobbying strenuously for major increases in defense spending. In 1920 he ran unsuccessfully as the Democratic vice presidential candidate on a pro-League of Nations ticket.

Shortly afterward Roosevelt contracted polio, which left him permanently



Soviet Primier Josef Stalin (left), U.S. President Franklin D. Roosevelt (center), British Prime Minister Winston Churchill (right), and various military officers meet on the portico of the Russian Embassy in Tehran, Iran, in 1943. The conference, which was held from November 28 to December 1, 1943, was a meeting of the Big Three to discuss the strategy of the Allies during World War II. (Library of Congress)

disabled but did not prevent his return to politics. Elected governor of New York in 1928, four years later he ran successfully for the presidency. In his first term as president, Roosevelt concentrated primarily on domestic affairs, launching a major reform program—the New Deal—to tackle the Great Depression and its effects. Even so, by the mid-1930s he displayed far greater determination than most Americans to check the growing influence and territorial designs of expansionist fascist dictatorships in both Europe and Asia, which he and his close advisors believed ultimately menaced American strategic, economic, and ideological interests.

Appreciable popular resistance to American intervention notwithstanding, when the general European war began in September 1939, Roosevelt unequivocally and immediately placed the United States in the broad Allied and antifascist camp. Two years of fierce debate over U.S. foreign policy ensued, during which Roosevelt moved his country ever closer to outright war with Germany while providing massive quantities of aid to Great Britain, France, and, from Summer 1940, Free French forces, the Soviet Union (after June 1941), and China.

The United States entered the war as a result of the concurrent crisis in the Pacific, where Roosevelt sought to use economic policies to force the Japanese to withdraw from China and Indochina. The Japanese refused and on December 7,

1941, mounted a preemptive strike on Pearl Harbor. There is absolutely no evidence that Roosevelt knew about the attack in advance and deliberately left the Pacific Fleet exposed.

From then until 1945 the United States, Great Britain, and the Soviet Union were the senior coalition partners in the Grand Alliance against the Axis powers (Germany, Italy, and Japan). Since Roosevelt sought to build up China as a key postwar U.S. ally in Asia, at times he accorded that country similar formal status, although its military and economic weakness and partial occupation meant that it never carried the same weight as the other three. As president, Roosevelt set the parameters of American and Allied strategy. He consciously chose to place winning the war in Europe ahead of the Pacific theater and authorized the development of atomic weapons. He also presided over the forging of close permanent ties among the U.S. military establishment, science, and industry—links that later hardened into a postwar Military-Industrial Complex.

During the war, Roosevelt met repeatedly with his Soviet and British counterparts, Soviet President Josef Stalin and British Prime Minister Winston Churchill, to reach agreement on Allied strategy and to plan for the postwar world. At Roosevelt's urging, in August 1941 Britain and the United States signed the Atlantic Charter, committing the two powers to a postwar international organization to maintain peace and to base the postwar order on principles of liberal free trade, international law, national self-determination, and human rights. Other members of the Grand Alliance later endorsed this statement, although both Britain and the Soviet Union expressed significant reservations on economic and colonial matters.

Roosevelt himself frequently expressed strong opposition to the continuation of Western imperialism after the war, sentiments that greatly irritated Churchill, who believed profoundly in the British Empire. Roosevelt was even more dedicated to ending French colonial rule, although there are indications that by early 1945 this was no longer so high a priority for him.

The British and U.S. decision to defer the cross-Channel invasion of Europe until the spring of 1944 effectively ensured that after the war Soviet military forces would control most of Eastern Europe and the Balkans. Early indications of what this would imply occurred from August to October 1944, when Soviet troops stood by while German forces suppressed an uprising in Warsaw that eliminated many potential opponents of Soviet as well as German rule. At the February 1945 Yalta Conference, the three leaders signed the Declaration on Liberated Europe supposedly promising free elections on democratic principles to all areas taken over by the Allies; but only the goodwill of the occupying powers, who could interpret them as they pleased, guaranteed these pledges. At Yalta, the Big Three also agreed to divide Germany into three temporary, separate occupation zones to be administered by their occupying military forces. Roosevelt's acquiescence in the Yalta provisions exposed him to fierce posthumous attacks from conservatives; but given the military situation on the ground, the United States and Britain had few effective means of preventing Soviet domination of the area. By the time of Roosevelt's death in April 1945, U.S.-Soviet relations were deteriorating as the brutality with which Stalin intended to impose effective Soviet domination on

much of Central and Eastern Europe became increasingly apparent to often shocked Allied observers.

Roosevelt himself erroneously assumed that the postwar understanding among Britain, the Soviet Union, and the United States would endure beyond victory, envisaging a peace settlement effectively based on the delegation to each great power of a regional sphere of influence. During the war he endorsed postwar American membership in the United Nations (UN) and newly created international economic institutions, effectively setting the United States on the path of continued involvement in international affairs, moves for which he cannily obtained bipartisan political support. He expected that the wartime Allies, as permanent members of the UN Security Council, would effectively dominate the new UN.

Under Roosevelt the United States became the world's greatest economic and military power, a position it retained throughout the 20th century, and moved decisively away from its limited pre-1940 internationalism. In poor health in his final year, Roosevelt did not survive to view the results of his labors. He died of a stroke at Warm Springs, Georgia, on April 12, 1945.

Roosevelt had not informed his vice president and successor, Harry S. Truman, in any detail of his future intentions in the international sphere, but Truman nonetheless promptly expressed himself as intending, with due guidance from Roosevelt's advisors, to fulfill his predecessor's postwar ambitions. Some historians, notably Daniel Yergin, have suggested that Truman was far more uncompromising in dealing with the Soviet Union than Roosevelt would have been. However, given the weakness of the ties binding the Grand Alliance once Japan had been defeated, it may well be that Roosevelt also would have faced equally great difficulties in maintaining continued harmonious relations with Stalin.

Priscilla Roberts

See also: China, People's Republic of (PRC); Soviet Union (USSR); Truman, Harry S.; United Kingdom (UK); United States Navy; Weapons, Nuclear; World War I; World War II

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RUMSFELD, DONALD (1932–)

U.S. secretary of defense (1975–1977, 2001–2006). Born in Chicago, Illinois, on July 09, 1932, Donald Henry Rumsfeld graduated from Princeton University in 1954. After serving three years as a naval aviator, he went to Washington, D.C., in 1957 and became an administrative assistant to an Ohio congressman.



Secretary of Defense Donald Rumsfeld (right) is escorted by Commander of Troops Col. Thomas M. Jordan (center), U.S. Army, and Chairman of the Joint Chiefs of Staff Gen. Henry Shelton, U.S. Army, as he inspects the troops at an Armed Forces Full Honor Welcoming Ceremony and Review in his honor at the Pentagon parade field on Jan. 26, 2001. (Department of Defense)

In 1962 Rumsfeld won election as a congressman from Illinois. He won reelection three times but resigned in 1969 to assume the post of director of the Office of Economic Opportunity in President Richard Nixon's administration. In 1971 Rumsfeld became director of the Economic Stabilization Program. Early in 1973 he was appointed U.S. ambassador to the North Atlantic Treaty Organization (NATO). In August 1974, following President Nixon's resignation, Rumsfeld headed the transition team for President Gerald R. Ford. Rumsfeld then served the Ford administration as White House chief of staff from 1974 to 1975, and then became secretary of defense on November 20, 1975. Rumsfeld was the youngest secretary of defense to that time and held the post until the end of Ford's term in January 1977. During his tenure at the Pentagon, Rumsfeld oversaw the initial production runs of the B-1 bomber, the Trident submarine, the Mark 12A nuclear warhead, and the MX ballistic missile system.

In 1977 Rumsfeld left government for the private sector, serving as chief executive officer (CEO), president, and later chairman of G. D. Searle & Co., where he engineered a financial turnaround during 1977–1985. During 1990 to 1993 he was CEO of General Instrument Corporation, again taking a troubled company back into profitability.

In 2001 Rumsfeld returned to the public sector as secretary of defense in President George W. Bush's administration.

Following the September 11, 2001, terrorist attacks, Rumsfeld became one of the most visible members of the Bush team and lobbied successfully for a significant boost in the defense budget. He occupied center stage in planning the U.S. invasions of Afghanistan and Iraq. His comments condemning what he called "Old Europe" (namely, France and Germany) sparked controversy. Rumsfeld also came under fire for his handling of the war in Iraq, especially his belief that the conflict could be won by a small number of troops and that only a small number of forces would be required for occupation and stabilization purposes. He shrugged off any responsibly for the abuse of Iraqi prisoners at Abu Ghraib. Nonetheless, he enjoyed the full support of Bush and continued as secretary of defense into the administration's second term. However, Rumsfeld resigned on November 8, 2006. This came a week after Bush had expressed confidence in his defense secretary and said that Rumsfeld would remain until the end of his term, but it was also one day after the midterm elections in which the Republican Party lost its majorities in both the House of Representatives and the Senate. The election was widely seen as a referendum on the Iraq War and, by extension, Rumsfeld's leadership in it. Bush named former Central Intelligence Agency (CIA) director Robert Gates to succeed Rumsfeld.

Arthur Holst

See also: Bush, George Walker; Central Intelligence Agency (CIA); Ford, Gerald Rudolph; Nixon, Richard Milhous; North Atlantic Treaty Organization (NATO); Persian Gulf War II

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RUSK, DEAN (1909–1994)

U.S. secretary of state (1961–1969). Born in Cherokee County, Georgia, on February 9, 1909, David Dean Rusk graduated from Davidson College, then won a Rhodes Scholarship to Oxford University, completing a master's degree in politics, economics, and philosophy in 1934. Returning to the United States, he became professor of government and dean at Mills College, California. An Army Reserve officer, Rusk was called to active duty in 1940, working on military intelligence in the War Department, transferring to Joseph W. Stilwell's staff in the China-Burma-India theater in 1943, and ending the war as a colonel on the War Department general staff.

Rusk became special assistant to Secretary of War Robert P. Patterson, but in 1947 new Secretary of State George C. Marshall invited Rusk to head the State Department's Office of Special Political Affairs. In Spring 1949 Rusk became deputy undersecretary of state. Major policy initiatives during his tenure included the Marshall Plan, the establishment of a separate West German state, and the negotiation of the North Atlantic Treaty.

In March 1950 Rusk became assistant secretary of state for Far Eastern affairs, formulating policy on the People's Republic of China (PRC), the Republic of China (ROC, Taiwan), and the Koreas. When the Democratic People's Republic of Korea (DPRK, North Korea) invaded the Republic of Korea (ROK, South

Korea) in June 1950, Rusk recommended firm action and military intervention under international United Nations (UN) auspices. A firm supporter of Chinese Nationalist leader Jiang Jieshi, whom Chinese communist forces drove from the mainland to Taiwan in 1949, Rusk strongly opposed U.S. recognition of the new PRC. His varied experiences reinforced his conviction that aggressive totalitarian powers of both Left and Right must be uncompromisingly opposed.

During 1951–1961 Rusk headed the Rockefeller Foundation, greatly expanding aid programs to the developing world. In 1961 President John F. Kennedy appointed Rusk secretary of state. Rusk placed special emphasis on improving relations with the Soviet Union, pushing arms control agreements, including the 1963 Partial Test Ban Treaty (PTBT) and the 1968 Non-Proliferation Treaty (NPT), and increasing aid to developing countries. Generally speaking, Rusk counseled moderation during the ongoing Berlin Crisis and the Cuban Missile Crisis.

Initially skeptical of Kennedy's growing U.S. troop commitments in Vietnam, Rusk, under President Lyndon B. Johnson, who relied far more heavily on his advice, became increasingly dedicated to the proposition that the United States must resist communist aggression there. He reluctantly acquiesced in the 1963 coup against South Vietnamese President Ngo Dinh Diem, who had failed to institute domestic reforms that Rusk considered essential. Erroneously holding Communist China primarily responsible for expanding North Vietnamese and Viet Cong military efforts, Rusk uneasily supported Johnson's escalation of the war in 1965. At that time Rusk opposed peace negotiations, fearing that his country would enter them from a position of weakness.



Dean Rusk was secretary of state from 1961–1969, during the administrations of presidents John F. Kennedy and Lyndon B. Johnson. Rusk was a strong proponent of U.S. involvement in Vietnam. (Yoichi R. Okamoto/Lydon B. Johnson Presidential Library)

Although concerned that excessive American escalation might trigger outright war with China, Rusk supported subsequent troop increases and Johnson's bombings of the Democratic Republic of Vietnam (DRV, North Vietnam) and rarely favored bombing halts to facilitate potential peace talks. He became the war's most ardent official defender, clashing repeatedly with J. William Fulbright, chairman of the Senate Foreign Relations Committee. After the communist 1968 Tet Offensive, Rusk staunchly backed U.S. commander

General William C. Westmoreland's request for 200,000 additional American troops. When Johnson rejected his advice in March 1968, Rusk's influence began to wane. He played only a minor role in the Paris peace talks that opened in May 1968.

His reputation tarnished by his exhausting years in office, a deeply scarred Rusk left the State Department in 1969, teaching international law at the University of Georgia until 1984 and eventually writing his memoirs. He died in Athens, Georgia, on December 20, 1994.

Priscilla Roberts

See also: Berlin Crises; China, People's Republic of; Cuban Missile Crisis; Germany, Federal Republic of; Johnson, Lyndon Baines; Kennedy, John Fitzgerald; Korean War; Marshall, George Catlett; North Atlantic Treaty Organization (NATO); Soviet Union (USSR); Vietnam War

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RUSSELL, RICHARD BREVARD, JR. (1897–1971)



Richard Russell was one of the most powerful members of the U.S. Senate during the years of the cold war and the Vietnam War. (Hulton Archive/Getty Images)

U.S. senator and longtime chair of the Senate Armed Services Committee. Born in Winder, Georgia, on November 2, 1897, the son of a former justice of the Georgia Supreme Court, Richard Russell Jr. earned a bachelor of law degree from the University of Georgia in 1918. He was elected to the Georgia state legislature at age 23 and in 1931 became the youngest governor in that state's history.

Russell reached the U.S. Senate in 1933 as its youngest member and preached a small-town conservatism that was rapidly vanishing from the American political landscape. He mentored freshman Senator Lyndon Johnson and developed a powerful reputation as a behind-the-scenes orchestrator of Senate business. In 1951 Russell chaired the high-profile hearings on the dismissal of General Douglas MacArthur from command of United Nations (UN) forces in

Korea. The senator handled this potential political firestorm so adeptly that the controversy quickly subsided.

A master at shepherding defense appropriations through Congress, Russell chaired the Armed Services Committee from 1951 to 1952 and 1955 to 1968 while often serving as de facto head of the powerful Appropriations Committee at the height of the Cold War. As such, he provided strong support for what Dwight Eisenhower termed the Military-Industrial Complex and helped ensure minimal congressional oversight of the Central Intelligence Agency (CIA).

Although privately uneasy with the U.S. military commitment in Vietnam, Russell never put the full weight of his stature and influence behind a reevaluation of the U.S. engagement there. He criticized U.S. Defense Secretary Robert McNamara's gradual escalation policies and frequently called for greater U.S. resources and more decisive tactics in Vietnam during the late 1960s, despite doubts that victory was likely. Russell would not offer the White House political cover for extrication from the conflict. The normally outspoken legislator couched his timidity in claims of helplessness over providing solutions to the growing Vietnam quagmire. His equivocation ultimately proved most tragic in light of his special relationship with President Johnson.

Russell died in Washington, D.C., on January 21, 1971.

Jeffrey D. Bass

See also: Central Intelligence Agency (CIA); Cold War; Eisenhower, Dwight David; Johnson, Lyndon Baines; Korean War; Vietnam War

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SIKORSKY AIRCRAFT CORPORATION

Sikorsky Aircraft Corporation (now a division of United Technologies) has maintained a close relationship with the U.S. military since World War II. Founded by Russian immigrant Igor Sikorsky in 1923, the company was initially focused on the production of seaplanes for commercial aviation. During World War II, Sikorsky Aircraft continued to produce seaplanes; however, in close cooperation with the U.S. military, it began converting the first practical helicopter, the VS-300, into a military variant. In 1943, initial experiments landing aboard a specially modified tanker, the SS *Bunker Hill,* led to a long and mutually beneficial relationship with the U.S. Navy.

First envisioned as a platform for search and rescue, logistics and antisubmarine warfare, follow-on Sikorsky helicopters have continued to perform these missions for the Navy. Sikorsky also cultivated relationships with international military establishments, including licensed manufacture of Sikorsky designs by Westland in Britain, Nippon Aircraft in Japan, and Agusta in Italy. Additionally, the company continued to develop aircraft in coordination with the other military services. These efforts culminated in the development of the H-60 series, variants of which serve with all branches of the U.S. military as well as 25 international militaries.

K. J. Delamer

See also: Arms Manufacturers/Defense Industry Contractors; United States Navy; Weapons, Air

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A U.S. Marine Sikorsky HRS-2 Chickasaw delivers supplies to a forward position. United Nations forces, mainly those of the United States, employed several types of helicopters in the Korean War. These rotary wing aircraft rescued downed airmen and rapidly ferried critically wounded soldiers to field hospitals. (National Archives)

SOVIET UNION (USSR)

A large, ethnically diverse Eurasian nation slightly less than 2.5 times the size of the United States, the Union of Soviet Socialist Republics (USSR, Soviet Union) was formed in 1922 and dissolved in 1991. Since 1940 it was divided into 15 constituent or union republics (Armenia, Azerbaijan, Belorussia, Estonia, Georgia, Kazakhstan, Kirghizia, Latvia, Lithuania, Moldavia, Russia, Tadzhikstan, Turkmenistan, Ukraine, and Uzbekistan). The Soviet Union abutted 12 nations, 6 in Asia and 6 in Europe. To the south its Asian neighbors were the Democratic People's Republic of Korea (DPRK, North Korea), the People's Republic of China (PRC), Mongolia, Afghanistan, Iran, and Turkey. To the west Soviet European neighbors included Romania, Hungary, Czechoslovakia, Poland, Norway, and Finland. To the north the Soviet Union bordered on the Arctic Ocean, and to the east it bordered on the North Pacific Ocean. Its population in 1945 was 145–150 million people.

As the world's leading communist power during the Cold War, the Soviet Union was the principal antagonist and opponent of the United States. Tensions between the two powers dated back to the revolution and civil war that led to the creation of the Soviet Union. It was not until 1933 that the U.S. government



Soviet tanks parade in Red Square, 1964. (Library of Congress)

extended diplomatic recognition, and relations remained chilly until 1941 when the two powers found themselves on the same side of the war against Germany. As World War II drew to a close, however, lingering mistrust between the two reappeared and, combined with fundamental ideological differences, led to the Cold War.

The principal postwar goal of the Soviet Union under the leadership of Josef Stalin was national security. Stalin sought to acquire territorial buffer zones that would provide physical defense against first Germany and then any possible Western attack. Soviet leaders believed that this, along with reparations to restore the shattered economy and society of the Soviet Union, was the least they deserved for their role in defeating Germany. At the same time they hoped to secure and expand the future of communist ideology by surrounding the Soviet Union with like-minded regimes. Although his policies appear to have been fundamentally motivated by practical concerns of national security, Stalin was also a convinced socialist who saw the future in Marxian terms as a struggle between capitalism and communism.

In domestic politics, immediately after the war Stalin attempted to restore the party line. Prisoners of war returning from the West who might have been infected with dangerous ideologies were sent to the gulags. The leniency shown in Soviet culture during the war, when nationalism and orthodoxy were allowed to flourish in order to rally the populace, quickly disappeared. In 1946 Soviet

authorities launched the *Zhdanovschina,* a campaign named for Leningrad party boss Andrei Zhdanov intended to force artists, writers, and other cultural figures to follow strict Stalinist ideals in their works. Three years later Stalin used the excuse of Zhdanov's death to launch a purge of the Leningrad party apparatus. Yet another major purge was being prepared in 1953, indicating that Stalin remained intent on bending the nation and the party to his will.

In the international arena though, it is clear now that the Soviets knew they were not dealing from strength at the outset of the Cold War. In addition to vast property destruction, the Soviet Union had lost 25–27 million people dead in World War II, and it faced a United States that possessed nuclear weapons. As a counter the Red Army was in physical possession of much of Central and Eastern Europe, and the Allies had allowed the Soviet Union to annex eastern Poland. To secure Soviet participation in the war against Japan, the British and U.S. governments also agreed to allow the Soviet Union to annex the Kurile Islands (which had never been Russian territory) and southern Sakhalin Island and to receive concessions in the Liaodong Peninsula of China (which included Darien and Port Arthur).

Stalin's initial pragmatic approach led him to withdraw Soviet forces from northern Iran in 1946, to disassociate himself from the communist rebellion in Greece, and to try to rein in the Chinese communists. The Soviets' inability to reach an acceptable agreement regarding the future of Germany, however, gradually drove Stalin to take a harder ideological line. Recent archival revelations indicate that Stalin desired a unified Germany that would be friendly toward, if not completely within, the Soviet sphere of influence.

Already in control of Poland and the remainder of Eastern Europe, after 1945 the Soviets exerted their influence within their zone of occupation in Germany. Harsh actions by the occupying Red Army had alienated most Germans. Soviet occupation authorities also shipped off to the Soviet Union anything of value, including entire factories. German prisoners of war also remained in the Soviet Union as slave laborers, some of them until 1955, while thousands of other Germans were also sent to the Soviet Union to serve in the same capacity.

Stalin avoided any blatant displays of disagreement over Germany until Spring 1947 when the announcement of the Marshall Plan apparently convinced him that the United States was trying to build an industrial base in Western Europe for future attacks against communism. The Soviet response was to blockade Berlin, which lay deep within the Soviet zone. The Soviets hoped to win support by providing food and energy to the population and to force the Allies from the city, which they could then use as a bargaining chip. British and American resolve, manifested in the Berlin Airlift and a counterblockade of the Soviet zone, forced Stalin to admit defeat in May 1949.

Even before that, however, the Soviets had subtly abandoned their policy of accommodation. In September 1947 Stalin orchestrated the creation of the Communist Informational Bureau (Cominform), a renewal of the Communist International that had been abandoned during World War II as a gesture of goodwill. During 1948 and 1949, the

carefully balanced and "democratic" governments of states within the Soviet sphere were purged of any potential opposition to Soviet control, even by native communists. In January 1949 the new loyal regimes assented to the formation of the Council for Mutual Economic Assistance (Comecon), the Soviet substitute for the Marshall Plan.

The Soviet zone of occupation in Germany quickly evolved into a separate state, the German Democratic Republic (GDR, East Germany), which the Soviet Union recognized in October 1949. Meanwhile, bloody purges occurred in the governments of Eastern Europe as Stalin tightened Soviet control of the region.

Even as the Iron Curtain rang down in Europe, the Soviet Union faced a new challenge in Asia. In 1949 the Chinese communists led by Mao Zedong emerged triumphant in the long struggle for power in China, establishing the People's Republic of China (PRC) in October 1949. Although the Soviet Union publicly welcomed the arrival of a second communist power and championed Mao's regime in the United Nations (UN), Stalin was less than delighted. Not only had he failed in his attempt to subjugate the Chinese communist movement, but Mao's ideology challenged the hegemony of Soviet communism in the international arena. When Mao visited Moscow in Winter 1949–1950, Stalin initially refused to treat with him. The fear that China might emerge as the leader of Asian communism not only led Stalin to relent in January 1950 but also influenced his decision to support the national ambitions of Kim Il Sung, the communist leader of North Korea. Meanwhile, in August 1949 the Soviet Union exploded its first atomic bomb. The atom bomb was only one facet of the newly revised and expanded Soviet version of the Military-Industrial Complex, however. The immediate postwar period saw an expansion of Soviet effort into developing weapons that could counter the United States. In their state-controlled military industry, the Soviet Union pursued high-technology weapon production, both indigenous as well as stolen manufacturing. A prime example was the Soviet air industry, which built on World War II models copying American designs (the Tupolev Tu-4, a copy of the US B-29), planes that improved on German technology (i.e., the German Junkers Jumo 004 jet engine copied and built into Soviet designs such as the Yakovlev Yak-15), as well as pure Soviet designs such as the Mikoyan Gurevich MiG-15.

With substantial Soviet military assistance and the support of the PRC, in June 1950 North Korean forces invaded the Republic of Korea (ROK, South Korea). The Soviets' absence from the UN General Assembly (in protest over the refusal to allow Mao's regime to assume the Chinese seat) allowed the United States to marshal international support in what was the UN's first war. In October the PRC entered the war. The Soviet Union provided air defense for China proper, but Mao was angry that this did not include air support for Chinese forces within Korea, which he believed he had been promised.

While Stalin's maneuvers preserved at least the appearance of Soviet ideological leadership and communist solidarity, the costs were significant. Fearing monolithic communist power bent on world domination, the Western Allies rallied together. They opened negotiations to

rearm the Federal Republic of Germany (FRG, West Germany) and bring it into the North Atlantic Treaty Organization (NATO) to defend against any communist aggression in Europe. The United States also signed a separate peace treaty with Japan, pairing it with a defense treaty that not only denied the Soviet Union de jure recognition of its territorial acquisitions in Asia but also provided military bases to support the American strategy of containment. Although Stalin attempted to regain the initiative by proposing a united, neutral Germany in March 1952, there was little hope of this being accepted. When the Soviet dictator died in March 1953 the Cold War was at its peak, with a proxy war going on in Korea and both sides racing to build up their armaments in case a hot war should break out.

In the uncertainty that followed, Stalin's successors moved quickly to lessen tensions both domestically and internationally. Although both Vyacheslav Molotov, Stalin's notoriously hard-line foreign minister, and Lavrenty Beria, the infamous head of the Soviet secret police, were in the initial group that succeeded the dictator, it was Georgy Malenkov and Nikita Khrushchev who really directed policy. Both men favored pragmatic politics and better relations with the West. They lowered food prices and shifted somewhat the focus of the Soviet economy from industrial goods to consumer products. The purge already in progress, the so-called Doctors' Plot, was curtailed and the accused were released. Thousands of other inmates from Stalin's camps also received their freedom. Beria himself, however, was arrested, tried in secret, and executed.

The thaw in the ideological battle also extended to foreign affairs. In July 1953 an armistice was concluded in Korea, and a year later Soviet concessions led to the conclusion of the Austrian State Treaty, breaking a decade-long deadlock over the future of that state. Khrushchev, who had emerged as the dominant figure in the new Soviet leadership, reconciled with Josip Broz Tito and visited Belgrade. In 1955 the nations of Eastern Europe signed the Warsaw Pact, pledging mutual defense. That July Khrushchev met with Western leaders in Geneva in an attempt to mitigate tensions. Then in February 1956 Khrushchev denounced Stalin's policies and methods in his famed "secret speech" to the Twentieth Congress of the Communist Party of the Soviet Union.

Similar criticisms of Stalinist policy immediately after the dictator's death had led to an uprising in East Germany on June 16 and 17, 1953. The new accusations caused rebellions first in Poland and then in Hungary. Popular protests against the Soviet occupation forced the Red Army to withdraw from Budapest. When protracted negotiations failed to produce a solution and Imre Nagy announced that Hungary would withdraw from the Warsaw Pact, however, in November 1956 Khrushchev ordered in the Soviet Army, which suppressed the rebellion in bloody street fighting. This Soviet action and the inaction of the Western powers, who were distracted by the concurrent Suez Crisis, made it clear that the spheres of influence delineated after the war would not be challenged.

The rest of the world, however, was under contention. Khrushchev's adopted philosophy of peaceful coexistence held that war between the superpowers was neither inevitable nor desirable but that competition was allowed. He and other members of the Soviet leadership

accordingly traveled extensively, offering friendship and Soviet aid. In 1955 Khrushchev and President Nikolai Bulganin had visited India, Burma, and Afghanistan. When Fidel Castro's revolutionary movement gained power in Cuba in 1959, Khrushchev was quick to recognize the regime as an ally and proffer assistance. The Soviets went so far as to send military hardware to Cuba to include medium range (nuclear) ballistic missiles to Cuba, sparking the Cuban Missile Crisis.

A new Sino-Soviet Friendship Pact extended large-scale technical and financial aid to China in 1959 as well. Khrushchev's largest and best-known venture in this regard, however, was to subsidize construction of the Aswan High Dam in Egypt, extending Soviet influence into the Middle East.

Khrushchev sincerely believed that the Soviet economy could overtake the United States, prove the superiority of communist doctrine, and provide an attractive model for third world nations to emulate. He initiated a series of reforms with this aim in mind, beginning in 1957 with the reorganization of the central economic ministries of the Soviet Union. The following year saw an adjustment in state investment priorities, and in 1959 the Soviet Union adopted a new, aggressive Seven-Year Plan designed to increase agricultural output and production of consumer goods. The Soviet leader was so confident of success that he allowed an exhibit of the American way of life in Moscow in 1959, where he engaged U.S. Vice President Richard Nixon in the famed Kitchen Debate on the merits of the two economic systems. In September of that year, Khrushchev became the first Soviet leader to visit the United States.

Although Khrushchev had his successes, most notably in space (which he had aggressively promoted) with the launch of *Sputnik I* in 1957 and Yuri Gagarin's orbiting of Earth in 1960, the Soviet Union made little progress economically. Khrushchev's highly touted Virgin Lands program to vastly expand the cultivated areas of Soviet Central Asia was a failure. His rapprochement with the United States angered the Chinese, who accused the Soviets of revisionism. Mao argued in 1960 that even nuclear war would be preferable to peaceful dealings with the United States.

U.S.-Soviet relations remained tense throughout the period, though, thanks largely to Khrushchev's habit of fomenting crisis as a matter of policy. The Soviets produced their own hydrogen bomb in August 1953, and four years later they successfully tested an intercontinental ballistic missile (ICBM) capable of delivering such weapons to the U.S. mainland. Khrushchev used the missile threat liberally, convincing many Western analysts that the Soviet Union had in fact surpassed the United States in that area. He also revisited the issue of Berlin in November 1958, threatening to sign a separate peace treaty with East Germany if the Allies did not sign a treaty recognizing the existence of two Germanies and "the free city of West Berlin." The Soviet leader intended to use the city as a lever to open talks with the United States that he believed would lead to a European settlement and perhaps even the end of the Cold War. Although no progress was made even on smaller issues, a 1959 meeting with President Dwight D. Eisenhower was cordial enough and seemed to bode well for the future.

It did not help Khrushchev's cause, however, when the Soviets shot down a U.S. U-2 spy plane on May 1, 1960. The event scuttled a second summit with Eisenhower, and when Khrushchev did meet with President John F. Kennedy in June 1961, progress was limited by the Soviet leader's condescending attitude. The construction of the Berlin Wall in August 1961, in combination with renewed Soviet nuclear testing, also helped curtail any realistic chance for an understanding with the United States.

The final blow to Khrushchev's aspirations, however, came with the Cuban Missile Crisis of October 1962. Hoping to steal a march on the Americans and force them to recognize the Soviet Union as an equal in the game of global power politics, Khrushchev had arranged for the placement of Soviet missiles on Cuba, only 120 miles from the coast of Florida. American intelligence discovered the installations before the missiles could be deployed, and in early October 1962 Kennedy ordered a naval "quarantine" of Cuba to prevent the arrival of additional weaponry. After a period where the world held its breath while Soviet cargo ships approached the Caribbean and nuclear war seemed imminent, Khrushchev backed down. The Soviet ships bearing the weapons and their support systems returned to the Soviet Union. This humiliation, combined with the failure of several domestic economic reforms in the early 1960s, finally convinced the other members of the Soviet Presidium that Khrushchev had to go, and he was duly removed in October 1964.

As in 1953 and 1954, the change in leadership brought uncertainty and change to Soviet foreign policy. The Soviet grip on Eastern Europe, in particular, loosened once again as pressure for reform mounted in Moscow. In Hungary, East Germany, and Czechoslovakia, new economic systems emphasizing market mechanisms instead of centralized control came into effect by 1968. Alexander Dubček, who became leader of the Communist Party of Czechoslovakia (CPCz) in January 1968, boldly permitted political reforms as well.

By allowing independent pressure groups and relative freedom of the press, Dubček hoped to create "socialism with a human face," an aim not far off Khrushchev's desire for communism led by economic success. Like Khrushchev, Dubček miscalculated the effect of his policy. The new Soviet leadership headed by Leonid Brezhnev was not prepared to tolerate such developments. Soviet tanks rolled into Prague on the night of August 20–21, 1968, bringing an end to the so-called Prague Spring and to most hopes of reform in Central and Eastern Europe. Although the Soviet Union allowed Poland to raise loans in the West to facilitate economic expansion in 1970, the Brezhnev Doctrine of 1968 emphatically restated the principle of 1956 that Soviet influence remained supreme in that sphere.

Although that statement of policy went unchallenged by the West, it stirred dissent among other communist states. Albania, Romania, and Yugoslavia all condemned the Soviet action. Only 61 of 75 nations attending a June 1969 meeting in Moscow agreed to sign the main protocol. China denounced the Soviet Union in strident terms, and skirmishes along the Siberian border between the two powers raised the possibility of open warfare between the two communist giants.

On all other fronts, however, Brezhnev and his cronies were more successful in

pursuing Khrushchev's foreign policy than Khrushchev himself had been. Soviet friendship with Cuba remained warm, and the Soviet Union pursued close ties with India and, to a lesser extent, Pakistan. Relations with West Germany also improved, and a treaty recognizing both German states was signed in 1970. While Soviet-supported Democratic Republic of Vietnam (DRV, North Vietnam) forces wore down U.S. and Republic of Vietnam (RVN, South Vietnam) forces in South Vietnam, Brezhnev repeatedly trumpeted the Soviet Union's support for national liberation movements everywhere. The Soviet Union joined Cuba in sending aid to liberation movements in Angola and Mozambique.

Despite these Soviet adventures, relations with the United States were cordial enough to merit an upgrade from peaceful coexistence to détente. The United States and the Soviet Union signed the Nuclear Non-Proliferation Treaty (NPT) and began the Strategic Arms Limitations Talks (SALT) in 1969. The resulting Anti-Ballistic Missile (ABM) Treaty was signed in 1972. Visits between American and Soviet leaders became a fairly regular occurrence, with President Nixon visiting Moscow in 1972 and 1974, while Brezhnev came to New York in 1973. In 1975 both states signed the Helsinki Final Act, culminating several years of negotiations on questions of European boundaries and human rights.

Tensions did not, of course, disappear completely. In 1977 the Soviet Union stationed new SS-20 missiles in Eastern Europe. The United States retaliated by introducing cruise missiles to bases in West Germany and the United Kingdom and sent new Pershing missiles to West Germany as well. A second round of SALT prevented crisis and also reaffirmed the policy of détente by reaching a tentative agreement on missile placement in Europe in 1979.

Whatever goodwill existed between the two states in the 1970s, however, dissipated in the wake of the Soviet decision to send troops into Afghanistan in December 1979. U.S. President Jimmy Carter ordered an immediate increase in defense spending, and détente collapsed. The ideological divide between the two superpowers deepened when Ronald Reagan won the presidency in November 1980 and again when the Soviet Union approved the imposition of martial law in Poland in December 1981. Even Brezhnev's death in November 1982 and another transition period failed to halt the Cold War.

As it had in 1953 and in 1964, Soviet policy moved toward reform and compromise during the period of transitional leadership. Brezhnev's successor, Yuri Andropov, strove to revitalize the Soviet system by introducing new discipline. He implemented anticorruption and antidrinking programs, introduced new measures to ensure punctuality in the workplace, and commissioned studies for sweeping economic restructuring. To gain the requisite fiscal breathing space, he also attempted to resuscitate détente. He called for a summit with Reagan, proposed further reductions in nuclear arms, suggested a nuclear test ban, and, most startlingly, in January 1983 offered the possibility of a treaty forswearing attack.

Reagan responded by announcing the funding of research on a Strategic Defense Initiative (SDI), the so-called Star Wars system for space defenses against any missile attack, in March 1983. Andropov refused to believe that

any such system would be purely defensive, and suspicions mounted on both sides. It appeared that relations might reach crisis proportions when the Soviets shot down a South Korean airliner, flight KAL Flight 007, which strayed into Soviet airspace on September 1, 1983. Diplomats on both sides acted quickly to defuse the situation but were unable to renew the thaw of the 1970s. Any chances of further progress were forestalled by Andropov's declining health and death in February 1984 and then by the illness and incompetence of his successor, Konstantin Chernenko, an octogenarian who suffered from emphysema and lived only until March 1985.

The man who succeeded Chernenko, however, moved with speed great enough to make up for both his predecessors. A protégé of Andropov, Mikhail Gorbachev was known as a reformer, a practical intellectual, and an ambitious man of action. He had traveled in Western Europe, and both he and his wife Raisa appeared at ease in Western society, a marked difference from all Soviet leaders since Lenin. Gorbachev was, however, a committed socialist. He believed that vigorous reforms would prove the viability of the system and that Soviet communism and capitalism could coexist peacefully even as they competed economically.

Gorbachev's initial moves thus came in domestic policy with attempts to revitalize Soviet agriculture and manufacturing through a program of acceleration (*uskorenie*) and openness (*glasnost*). These soon gave way to a general restructuring (*perestroika*) that included foreign affairs and especially Eastern Europe. As Andropov had, Gorbachev sought on the one hand a respite from the arms race and from international distractions. On the other hand, he also believed that a reformed and reenergized Soviet socialist economy could deal with the challenges of the United States and world capitalism. If the United States would not negotiate, he would act unilaterally. One aspect he had to deal with was that the Soviet system simply could not keep pace with the American arms race. Reagan's dedication to military spending and technological expansion within the Military-Industrial Complex forced the Soviets to keep up of fail; in the end they were not able to keep pace with American military spending nor could they match American technological superiority.

Gorbachev stated his intention to reverse the long-standing Soviet policy of controlling internal developments in the states of Central and Eastern Europe at a meeting of Warsaw Pact leaders in March 1985 and initiated plans to extricate the Soviet Union from Afghanistan in October. He had cordial meetings with President Reagan in Geneva in November 1985 and in Reykjavík, Iceland, in October 1986. At the second meeting he briefly won Reagan's agreement that all nuclear weapons on both sides should be destroyed within a decade before U.S. advisors effectively vetoed the accord. Negotiations continued, however, and the Intermediate-Range Nuclear Forces (INF) Treaty stipulating the destruction of all ground-based nuclear weapons of a particular range was signed in December 1987. In April 1988 the Soviet Union pledged to withdraw all its troops from Afghanistan by the end of the year, and Gorbachev later announced a 10 percent reduction in the size of the Soviet Army

that would coincide with the recall of six Soviet divisions from Eastern Europe.

These measures led to the end of the Cold War, but not in the way that Gorbachev imagined. The leaders of the Soviet satellites in Eastern Europe felt betrayed by Gorbachev's initiatives, while nationalists and dissidents within the Soviet Union used their new freedom to explore various means of escaping Russian domination. The Baltic states, citing the secret clauses of the Molotov-Ribbentrop Pact of August 1939 that Gorbachev had made public, clamored for independence. Large public demonstrations for independence also occurred in Georgia, Armenia, Azerbaijan, Moldova, Uzbekistan, and Ukraine.

By the middle of 1989 the movement for independence and democracy had spread to Eastern Europe. Poland held free, if limited, elections in June 1989 that the opposition won handily. In September the Hungarian government dismantled its fortified frontier with Austria and permitted free movement across the border. Thousands of East Germans exploited this loophole to escape to the West, while thousands of others demonstrated in the streets of Leipzig and other East German cities. Erich Honecker resigned as chairman of the East German Council of State in October 1989. The Berlin Wall, long a symbol of the divided world of the Cold War, came down the next month. The communist leaders of Bulgaria and Czechoslovakia stepped down, and Romania's Nicolae Ceauşescu was overthrown and executed.

The Soviet Union did nothing. Within 18 months, it too would cease to exist, unable to either reform or sustain the communist system that had existed since 1918. And with that, the Cold War, the ideological divide that had held the world in thrall for nearly 50 years, came to a close.

Soviet military equipment continued to appear in various countries around the world. The remnants of the Soviet Military-Industrial Complex are still the backbone of a majority of non-U.S. sponsored militaries; however, when Soviet equipment was made available to U.S. analysis (see former East German military hardware, handed over to the U.S. for testing at the end of the Cold War), it was quickly determined that the U.S. Military-Industrial Complex was superior in quality and quantity. However, former Soviet—now Russian—military hardware is still in high demand from former Soviet clients; a number of militaries around the world still rely on former Soviet hardware. Russian arms sales account for over $8 billion today.

Timothy C. Dowling

See also: Arms Race; Berlin Crises; Carter, James Earl, Jr.; China, People's Republic of; Cold War; Cuban Missile Crisis; Eisenhower, Dwight David; German Democratic Republic; Germany, Federal Republic of; Kennedy, John Fitzgerald; Korean War; Nixon, Richard Milhous; North Atlantic Treaty Organization (NATO); Reagan, Ronald Wilson; Strategic Arms Limitation Talks and Treaties (SALT); Strategic Defense Initiative; United Kingdom; Vietnam War; Weapons, Nuclear; World War II

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SPACE RACE

The competition between the United States and the Soviet Union to explore outer space, most often defined by the race to place a human on the moon. The space race was an integral part of the Cold War. Each side used the competition to demonstrate its technological prowess in the areas of science, education, engineering, and management. Both nations also used rocket and missile development gleaned from the space race to strengthen their military establishments. The two superpowers had been working on missile development for some time in hopes of developing intercontinental ballistic missiles (ICBMs) to deliver nuclear warheads. Both sides thus hoped that these programs would help develop a rocket capable of placing a satellite into orbit.

The space race officially began on October 4, 1957, with the successful Soviet launch of the *Sputnik I* satellite. The orbiting *Sputnik I* not only established an early Soviet lead in the space race but also was a major blow to American prestige, since U.S. leaders believed that the Soviets were incapable of such a breakthrough. The Soviet program, led by chief designer Sergei Korolev, who was largely unknown in the West, continued to reveal the American rocket program as unequal to the task. The Soviets' advantage was confirmed in their launching of the much heavier payload *Sputnik II* on November 3, 1957.

Americans were surprised to learn that the United States lagged badly behind Soviet rocket and missile technology. Politicians were outraged and proclaimed the existence of an alleged missile gap, which Senator John F. Kennedy exploited during his 1960 presidential campaign. Other Americans used the Soviet space lead to suggest a lack of rigor in American secondary schools in the fields of science and mathematics. While President Dwight D. Eisenhower rejected the notion of American weakness, the public was shocked when on December 6, 1957,



Scientists pose with Explorer I, the first American satellite, developed by the U.S. Army in 1958. (National Aeronautics and Space Administration)

Project Vanguard was unable to place an American satellite in orbit.

Another American program, the Explorer project under the direction of the U.S. Army and headed by former German rocket scientist Wernher von Braun, served notice that the Americans had not yet yielded the space field to the Soviets. On January 31, 1958, the United States successfully launched *Explorer I,* a light satellite that proved more scientific than symbolic when it discovered the Van Allen Radiation Belts. Also, to provide overall direction to the American civilian space effort and to match Soviet successes, Congress created a new government agency, the National Aeronautics and Space Administration (NASA). It began operations on October 1, 1958.

The Soviets continued to produce other impressive space firsts that the United States seemed unable to duplicate. The Soviet *Luna 1* was the first satellite to escape Earth's gravity when it entered solar orbit on January 2, 1959, although it missed its target of the moon. *Luna 2,* launched on September 12, 1959, sent back clear images of the moon's surface, while *Luna 3* on October 7, 1959, photographed the far side of the moon.

As successful satellite launches became routine, both sides sought to be the first to place a man in orbit. The Soviets won this competition with the launch of cosmonaut Yuri Gagarin into a one-orbit voyage around Earth on April 12, 1961. The United States successfully put astronaut Alan Shepard into a suborbital low-level space flight on May 5, 1961. On May 25, 1961, President Kennedy classified the space race as an integral part of the battle between freedom and tyranny and raised the stakes when he announced the American goal of placing a man on the surface of the moon by the end of the decade. On February 20, 1962, the Americans finally matched the Gagarin flight by putting a man into Earth's orbit with the three-orbit trip of astronaut John Glenn.

Following Gagarin's mission, the Soviet Union's other firsts in manned flight included the first day-long space flight of Gherman Titov on August 6, 1961; the first female in space, Valentina Tereshkova, on June 16, 1963; and the first space walk, by Alexei Leonov, on March 18, 1965. Unmanned Soviet moon flight firsts included the *Luna 9* soft landing on the moon with the first photos from the lunar surface on February 3, 1966, and *Luna 10,* the first to be in moon orbit, on April 3, 1966. The Soviets made an impressive

unpiloted flight to the moon with a return to Earth with *Zond 5* on September 14, 1968, which seemed to suggest that they were on the verge of sending the first man to the moon.

Although it appeared to many that the Soviets remained ahead in the space race, the United States worked feverishly to meet Kennedy's challenge and budgeted funds for it that the Soviet Union could not match. The Americans gradually eliminated the early Soviet race lead by securing qualitative advances, which translated into successes such as the rendezvous and docking of two manned spacecraft and the development and flight testing of the *Lunar Module,* both of which were essential to placing a man on the moon's surface. The United States also matched other Soviet achievements when it conducted several space walks and long-duration flights, and it achieved a soft landing on the moon with *Surveyor I* (June 2, 1966). The United States achieved a major breakthrough with the year-long *Lunar Orbiter* low-level photo-mapping of the moon's surface beginning in August 1966, undertaken in preparation for a manned landing.

Both sides suffered human losses and engineering failures during the race. The most notable American loss occurred during the *Apollo 1* fire, which began during a routine launch pad test on January 27, 1967, and killed American astronauts Gus Grissom, Edward White, and Roger Chaffee. The results of the subsequent investigation appeared to doom the effort to meet President Kennedy's deadline. The Soviets suffered the first loss of a man during actual space flight when they announced the death of cosmonaut Vladimir Komarov on April 24, 1967, during the crash landing of *Soyuz 1.* Other Soviet failures were masked by the secrecy and closed society of the Soviet Union, which also concealed its inability to keep pace with American successes.

While the Soviets were secretive, the United States won the publicity war. It announced its space mission schedule and proudly showed off its astronauts as men with "the right stuff." This effort earned positive media coverage and the support of the viewing public. The Soviet Union's propaganda machine also played up the country's own progress, but most Soviet space missions were announced only after success was certain. Only after the collapse of the Soviet Union and the end of the Cold War did the world learn of the major flight limitations of the Soviet successes, their space failures, and the many near disasters that the cosmonauts endured.

The United States recovered relatively quickly from the *Apollo 1* disaster of January 1967. On December 21, 1968, American astronauts Frank Borman, James Lovell, and William Anders were launched into space in *Apollo 8* and three days later orbited the moon. By then the United States had a clear lead in the space race that the Soviets seemed incapable of closing.

When *Apollo 11* (Neil Armstrong, Edward "Buzz" Aldrin, and Michael Collins) landed on the moon on July 20, 1969, the Americans stood victorious in the space race. Five more successful landings on the moon went unchallenged by the Soviets. In September 1970 the Soviet Union succeeded in landing on the moon the *Luna 16* probe, which returned lunar samples to Earth. The Soviets were the first to establish a space station in orbit with *Salyut 1* on April 19,

1971. But in reality, once *Apollo 11* landed in the Sea of Tranquility and returned safely home, the space race had ended.

Although the sense of a race was largely abandoned by both sides, further space exploration by both countries continued but without the Cold War fervor over which society was the most technologically advanced. In light of budget pressures and many unsolved domestic problems, leaders in both countries began to question the costs of space exploration. The spirit of political détente between the two superpowers began to reach into the field of space exploration. On July 15, 1975, both nations took a giant first step in long-term outer space cooperation with the launch and rendezvous of the *Apollo-Soyuz* mission. Cooperation between the two former adversaries continued in 1993 when the Soviets were invited to participate in the International Space Station.

The space race proved an energetic stimulus to both nations. The United States committed the funding necessary to win the race and, amid the unhappiness of the Vietnam War era, gave the nation a badly needed lift. While the Soviets could never match the United States in funding, they still achieved a stunning number of space firsts. These, however, came at the expense of those mission essentials required to send a man to the moon.

Thomas D. Veve

See also: Cold War; Eisenhower, Dwight David; Kennedy, John Fitzgerald; Missile Gap; National Aeronautics and Space Administration (NASA); Soviet Union (USSR); Vietnam War

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STRATEGIC ARMS LIMITATION TALKS AND TREATIES (SALT I AND SALT II)

A series of negotiations and agreements between the United States and the Soviet Union that attempted to control the nuclear arms race. Following the 1962 Cuban Missile Crisis, the United States and the Soviet Union began to move away from the abyss of nuclear war and toward the reduction of nuclear armaments. The two superpowers also sought cooperation on this issue because of the immense cost of the nuclear arms race. Continued production of nuclear weapons was becoming superfluous, as each side had more than enough capability to cripple the other even if only a small percentage of the weapons, should they be launched, actually struck their targets. The leadership of both nations was sufficiently motivated to seek an agreement on nuclear arms reduction. Adding to American motives were concerns that the Soviets might soon undermine U.S. superiority in nuclear arms and that the People's Republic of China (PRC) had acquired nuclear weapons beginning in 1964. Although the United States first approached the Soviet Union concerning



Leonid Brezhnev of the Soviet Union (left) and President Richard Nixon (right) shake hands in Moscow during talks regarding the Anti-Ballistic Missile Treaty of 1972. The treaty was based on the desire of both nations to avoid nuclear war and was the first significant arms limitation treaty between the United States and the Soviet Union. (National Archives)

strategic arms reduction talks in 1964, efforts to begin a dialogue failed repeatedly until the end of the decade.

Anti-Ballistic Missile Treaty

Arms reduction talks between the two nations began in November 1969 and, after two-and-a-half years of detailed negotiations, a two-part agreement was reached. The first major agreement to come out of the talks was the Anti-Ballistic Missile (ABM) Treaty, signed in Moscow on May 26, 1972. This treaty reflected a belief on the part of both nations that they should seek to limit the deployment of ABM systems.

ABMs were designed to destroy enemy missiles before they could strike their targets. The United States had sought an agreement with the Soviets since the late 1960s on ABMs, which the Soviets had begun to deploy, arguing that their continued deployment would lead the United States to develop larger nuclear weapons to defeat these defenses. Therefore, rather than slowing the arms race, the development and deployment of ABMs would only intensify the arms race. The Soviets finally accepted this line of reasoning. The preamble to the treaty reflected this understanding: "Effective measures to limit anti-ballistic missile systems would be a substantial factor in curbing the race in strategic offensive arms and would lead to a decrease in the risk of outbreak of war involving nuclear weapons."

The treaty had unlimited duration with five-year reviews. The two sides

created the Standing Consultative Commission to serve as the forum for discussing compliance issues or other problems with the treaty. The commission met in Geneva, Switzerland.

The ABM Treaty prohibited deployment of an ABM system for "the defense of the territory" or the provision of "a base for such defense." This effectively restricted the creation of a nationwide defensive system while permitting the Soviets and Americans to maintain two ABM sites, comprising no more than 100 interceptor missiles at each location. Each country could position one ABM site to defend its capital, and the other could shield one group of land-based intercontinental ballistic missiles (ICBMs). The agreement also prohibited transferring ABM sites to other nations.

Each side would verify compliance with the treaty through the use of national technical means. A 1974 Protocol to the treaty further limited each side to one ABM deployment site. The United States chose to place its system near the ICBM missile fields of Grand Forks, North Dakota, and the Soviet Union chose to defend Moscow.

The United States and Russia signed a series of agreements on September 27, 1997, that allowed Belarus, Kazakhstan, Russia, and Ukraine to succeed the Soviet Union as state parties to the treaty. These agreements also attempted to establish the demarcation between theater and national ballistic missile defense systems.

Ultimately both sides realized that ABM systems lacked any real military value and were prohibitively expensive. The United States closed its sole ABM site in 1975. Russia's Galosh system surrounding Moscow is still operational. Citing national security concerns and a need to deploy a limited national missile defense system, the United States withdrew from the treaty on June 13, 2002.

Interim Agreement on Strategic Offensive Arms: SALT I

Of greater importance was the wider-ranging arms control agreement that emerged from the Strategic Arms Limitation Talks (SALT). The Interim Agreement between the United States of America and the Union of Soviet Socialist Republics on Certain Measures with Respect to the Limitation of Strategic Offensive Arms, which came to be known as SALT I, was signed in Moscow by President Richard M. Nixon and Soviet Premier Leonid Brezhnev on May 26, 1972, along with the ABM Treaty. The SALT I accord, which was scheduled to last for five years, required the two superpowers to maintain nuclear arsenals that were roughly equivalent to one another in terms of offensive land- and sea-launching platforms. The agreement froze the number of Soviet offensive ICBMs to 1,618 land-based missiles and 950 submarine-launched ballistic missiles (SLBMs). The American arsenal was restricted to 1,054 land-based missiles and 710 SLBMs. Mobile missile systems were not addressed. While the Soviets seemed to have a numerical advantage in missile-launching capabilities, the United States continued to enjoy a substantial advantage in bombers (about 450 to the 260 for the Soviets) and could also rely on the nuclear deterrents belonging to their European allies. The Americans also took advantage of their technological superiority to develop multiple independently targeted

reentry vehicles (MIRVs). The Nixon administration refused to negotiate any limits in regard to this technological advance, and the Soviets would later take advantage of this.

In order to verify compliance with the terms of the treaty, both countries agreed to satellite photo reconnaissance of each-other's territory. Even so, there were flaws in the agreement. The biggest problems were that the agreement failed to sufficiently regulate the upgrading of current missile systems. And it said nothing about the replacement of existing systems with new ones.

Each side took advantage of the loopholes in the treaty. The Soviets began to deploy a new missile system, the SS-19, which carried a warhead with 6 MIRVed warheads. This missile carried twice as many nuclear warheads as the mainstay of the U.S. intercontinental missile arsenal, the Minuteman. Eventually the Soviet Union developed the ability to launch missiles carrying 10 MIRVs. On the other hand, the United States began to work on the development of the cruise missile, arguing that such a system was not covered under the SALT I agreement. Further compromising the spirit of the treaty were the new Soviet Backfire bomber, capable of reaching targets in the United States, and American plans to build the North American/Rockwell B-1 bomber and the Trident submarine. Another flaw in the treaty was that it permitted the replacement of so-called light missiles with heavy missiles, without adequately defining the term "heavy."

SALT I was designed to be an interim agreement, and the treaty contained a provision calling for continued talks aimed at creating a more detailed and comprehensive plan to regulate nuclear arms. Reaching agreement on what would become SALT II proved difficult, however. Progress was stalled by numerous factors, including President Nixon's resignation over the Watergate scandal in August 1974, American concerns with human rights violations in the Soviet Union, and a general deterioration in U.S.-Soviet relations during the 1970s. The broad numerical outlines of the eventual SALT II agreement were laid out in a summit meeting between Brezhnev and President Gerald Ford in Vladivostok in November 1974, but this did not lead to forward progress for many years.

SALT II

Arms control talks continued between the two superpowers despite these obstacles. By 1979 both sides desired a new SALT agreement. Anxious to overcome numerous foreign policy setbacks, President Jimmy Carter's administration sought an arms deal to improve his chances for reelection in 1980. The Soviets sought an agreement chiefly for economic reasons, as the nation's rate of economic growth was quickly stagnating.

Concerned that the Soviets had an advantage in throw weight, or the size of the warhead that a missile could carry into space, Carter offered to cancel development of an experimental mobile ICBM that could carry 10 warheads (the MX missile) if the Soviets would cut their heavy ICBM force in half. The Soviets refused to consider an offer to prevent deployment of what was still an experimental system. Carter then backed away from this position, and the negotiations began to move toward an eventual agreement. As a result Carter and Brezhnev affixed their signatures to the SALT II Treaty at the Vienna summit meeting on June 18, 1979.

By the terms of the treaty, both sides agreed to a limitation on the number of warheads that would be allowed on an ICBM and the total number of allowable strategic launchers. Strategic nuclear launch vehicles were limited to 2,250 on each side, and no more than 1,320 of these missiles could be outfitted with MIRVs. Within that total, a further subcategory limited MIRVed ballistic missiles to 1,200, of which only 820 could be ICBMs. New ICBMs were limited to carry no more than 10 warheads, and new SLBMs were limited to 14 warheads each. The treaty also prohibited space-based nuclear weapons, fractional orbital missiles, and rapid-reload missile launchers.

A protocol to the treaty was signed at the same time and remained in effect until December 31, 1981. The Soviets agreed not to utilize their Tupolev Tu-22M Backfire bomber, which had the ability to reach targets throughout most of the United States, as an intercontinental weapon, while the Americans consented to delay deployment of ground- and sea-launched cruise missiles for three years. In addition, MIRVed ground-launched cruise missiles (GLCMs) and submarine-launched cruise missiles (SLCMs) with a range of more than 600 kilometers could not be tested.

The SALT II Treaty ran into considerable opposition in the United States, as some liberals expressed disappointment that the treaty had failed to halt the arms race, and conservatives complained that the Soviets had retained a significant edge in throw weight.

Soviet actions in 1979 added immeasurably to the problem of ratifying the treaty. Their support of the Vietnamese invasion of Cambodia, the Sandinista uprising in Nicaragua, and the Soviet invasion of Afghanistan in December 1979 all but torpedoed any prospects that SALT II would be ratified by the U.S. Senate. Knowing that the Senate would not ratify the SALT II Treaty under such circumstances, Carter withdrew the treaty from Senate consideration on January 3, 1980. Although the treaty was never ratified by the United States, both sides nonetheless honored the agreement until May 1986, when President Ronald Reagan, citing Soviet violations, declared that the United States would no longer be bound by the limits of the SALT agreements.

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See also: Arms Race; Carter, James Earl, Jr.; China, People's Republic of (PRC); Cold War; Cuban Missile Crisis; Ford, Gerald Rudolph; Nixon, Richard Milhous; Reagan, Ronald Wilson; Soviet Union (USSR); Weapons; Nuclear

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STRATEGIC DEFENSE INITIATIVE

Space-based, antiballistic missile (ABM) system endorsed by U.S. President Ronald Reagan in 1983 as a way to neutralize the Soviet nuclear threat. Nicknamed "Star Wars" by its critics and the media, the Strategic Defense Initiative (SDI) foresaw the use of satellites, mirrors, and lasers that would detect, track, and destroy incoming nuclear missiles. Reagan believed that the SDI might force the Soviets to engage in nuclear arms reduction talks and serve as a partial solution to the threat posed by the nuclear arms race.

To counter the Soviet threat in the 1950s, the United States began work on an ABM system. Various incarnations emerged during the 1960s and early 1970s, until the United States and the Soviet Union signed the 1972 Anti-Ballistic Missile Treaty. This treaty limited the deployment of ABM systems to only two operational areas and stipulated that such a system could not protect the entire nation. Nevertheless, work continued in both nations to develop an effective means of nullifying an enemy nuclear attack.

Reagan had many motivations for pursuing the SDI. In principle, he disagreed with the concept of mutual assured destruction (MAD). MAD held that because of the catastrophic nature of thermonuclear war, any nation that initiated a nuclear exchange was guaranteed to suffer complete destruction in a counterstrike. Reagan believed that MAD was immoral and unacceptable. He was further motivated by the upcoming 1984 election and his desire not to be seen as a warmonger. Deploying a defensive system would demonstrate his desire to end the arms race.

Among those who supported the SDI were military contractors who stood to make money developing and deploying such a system. Other supporters included Robert McFarlane, Reagan's national security advisor during 1983 and 1985,



American President Ronald Reagan welcomes Russian leader Mikhail Gorbachev at la villa Fleur d'Eau in Geneva during a summit meeting on November 19, 1985. (Jean Louis Atlan/Sygma/Corbis)

who believed that the SDI could be used as a bargaining chip to motivate the Soviets to scale back their missile production. Opponents of the SDI, including some Reagan administration officials, mockingly nicknamed the plan "Star Wars" after the popular science fiction film.

In a televised address on March 23, 1983, Reagan publicly announced his desire to pursue the SDI. The scientific task was difficult, he admitted, but the rewards would be worth it—a United States whose citizens did not have to live in fear of nuclear destruction. The SDI would be costly, perhaps in the trillions of dollars. Reagan lobbied his friend and ally British Prime Minister Margaret Thatcher, who initially opposed the SDI but eventually came to see it as a good idea.

Unlike previous ABM systems, the SDI would provide missile defense from space. In fact to intercept missiles in flight, space-based weapons were the best option, because land-based weapons could not overcome the problems presented by the curvature of Earth. Because Soviet long-range missiles took only thirty minutes to reach their targets, there was just enough time to detect, track, and intercept the warheads before they reentered the atmosphere. As Reagan described it and as scientists conceived it, the SDI would employ a number of satellites and space-based radars to detect and track incoming missiles and land- or satellite-based lasers reflected off orbital mirrors to destroy a warhead in flight. Scientists planned lasers that would employ X-ray, infrared, ultraviolet, or microwave radiation. They also conceived of particle-beam weapons in which streams of charged atomic matter would be directed at incoming warheads.

From the perspective of some, particularly new Soviet leader Mikhail Gorbachev, the SDI was a great threat. When Reagan and Gorbachev first met in Geneva in 1985, the SDI proved the sticking point on any arms control agreements. Gorbachev fiercely objected to the SDI, arguing that such a system only made sense if the United States planned to launch a nuclear first-strike against the Soviet Union. Gorbachev also well understood that the Soviet Union lagged behind the United States in computer technology, an area crucial to such an advanced weapons system. For the Soviet Union to allow the SDI to move forward would be to admit defeat. Gorbachev therefore insisted that Reagan give up the SDI before agreements on limiting offensive weapons could be reached. Reagan refused, but he also told Gorbachev that the SDI was necessary and that when it was finally completed he would share the technology with the Soviets. Gorbachev did not believe Reagan, and Reagan could see no logical argument against the SDI. Because of the SDI, the two men departed Geneva without a deal on arms control.

The Reagan administration ultimately failed to develop and deploy the SDI. The technology proved too daunting and the costs were too high. Still, the mere threat of the SDI put tremendous pressure on the Soviets. Some scholars attribute the Soviet Union's 1991 collapse to Reagan's vigorous pursuit of the SDI. Others, however, regard the SDI as a costly boondoggle that only escalated Cold War tensions and contributed to swollen defense allocations and mammoth budget deficits.

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See also: Mutual Assured Destruction; Reagan, Ronald Wilson; United Kingdom; Soviet Union (USSR); Weapons, Nuclear; Weapons, Space

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TAIWAN (REPUBLIC OF CHINA, ROC)

U.S. arms sales to Taiwan have been a controversial diplomatic and political issue since Washington began normalizing its relationship with the government of the People's Republic of China (PRC) in the early 1970s. Although the United States and Taiwan were alliance partners from 1954–1980, Washington and Taipei have not had official diplomatic relations since January 1, 1979, when the United States formally established diplomatic relations with the PRC and terminated official governmental relations with the ROC on Taiwan. Because arms sales touch upon the sensitive issues of the U.S. role in China-Taiwan relations and Washington's interest in maintaining Taiwan's security, however, they remain controversial in U.S.-China relations and in U.S. debates over policy toward China and Taiwan. For its part, China has long criticized U.S. arms sales to Taiwan as constituting interference in its internal affairs. Beyond the sensitivity of the Taiwan arms sales issue in U.S.-China relations, U.S. arms sales to Taiwan are complicated by a number of other factors, including domestic politics in the United States and Taiwan and the unofficial nature of the U.S.-Taiwan relationship.

Notwithstanding these challenges, arms sales from the United States to Taiwan have continued for more than three decades after the normalization of the U.S.-China relationship because policy makers in Washington and Taipei believe they are required to help Taiwan upgrade its defense capabilities and maintain some level of deterrence in the face of China's growing military power. U.S. arms sales to Taiwan also have symbolic value in that they reflect the U.S. commitment to Taiwan's security. Moreover, most other potential suppliers of advanced military technology are reluctant to risk the diplomatic and potentially economic consequences of offending China by selling weapons to Taiwan. The United States is thus often the only country to which Taiwan can



A Taiwanese woman stands in the doorway of a convenience shop in Taipei next to an English language newspaper reporting President George W. Bush's comment on April 25, 2001 that America has an obligation to defend Taiwan if China attacks. (AP/Wide World Photos)

turn when it needs to purchase advanced weapons or other types of military hardware.

The legislative basis for the unofficial relationship between the United States and Taiwan and for U.S. arms sales to Taiwan is provided by the Taiwan Relations Act (TRA), Public Law 96-8 96th Congress, which was enacted on April 10, 1979. The shifting of diplomatic recognition to Beijing and termination of official relations with Taipei necessitated legislation establishing the means to conduct unofficial relations with Taiwan. When the draft legislation intended to serve that purpose was sent to the U.S. Congress, however, it was transformed into a broader statement about the U.S. role in maintaining Taiwan's security. This change resulted not only from concerns about Taiwan's well-being, but also from consternation among members of Congress that the Carter administration had failed to consult them about the termination of the 1954 U.S.-ROC Mutual Defense Treaty. The TRA as it was ultimately enacted was thus intended not only "to promote the foreign policy of the United States by authorizing the continuation of commercial, cultural, and other relations between the people of the United States and the people on Taiwan," but also "to help maintain peace, security, and stability in the Western Pacific."

The TRA declares that "peace and stability in the area are in the political, security, and economic interests of the United States, and are matters of international concern," and that the establishment of diplomatic relations with the PRC "rests upon the expectation that the future of Taiwan will be determined by peaceful means." The TRA further states that it is U.S. policy "to consider any effort to determine the future of Taiwan by other than peaceful means, including by boycotts or embargoes, a threat to the peace and security of the Western Pacific area and of grave concern to the United States." Consequently, the president must "maintain the capacity of the United States to resist any resort to force or other forms of coercion that would jeopardize the security, or the social or economic system, of the people on Taiwan."

The TRA also pledges that the United States "will make available to Taiwan such defense articles and defense serv-

ices in such quantity as may be necessary to enable Taiwan to maintain a sufficient self-defense capability." Specifically, the TRA states that the United States will continue "to provide Taiwan with arms of a defensive character." The precise meaning of this phrase has been a key source of controversy and debate. The wording is open to interpretation because it is often difficult to determine whether a particular weapon is intended for offensive or defensive purposes, especially when it is inherently capable of performing multiple missions.

Perhaps equally important and certainly no less controversial a document that provides part of the framework for U.S. arms sales to Taiwan is the August 17, 1982, U.S.-China Joint Communiqué, in which the United States stated that it intended "to reduce gradually its sales of arms to Taiwan, leading over a period of time to a final resolution." In addition, the United States stated that it would not increase the quantity or quality of arms sold to Taiwan. The United States assured Taiwan that these statements were predicated upon China adopting a peaceful approach to the resolution of the Taiwan issue. Beijing has frequently charged that subsequent U.S. arms sales to Taiwan have violated the spirit of the August 1982 Joint Communiqué. Policy makers and analysts in the United States have argued, however, that such arms sales remain necessary to promote regional security and that they do not violate U.S. commitments in this regard because China's military capabilities continue to pose a threat to Taiwan. The largest—and most controversial—sale to Taiwan that took place following the signing of the 1982 U.S.-China Joint Communiqué was the 1992 agreement to purchase 150 F-16 fighter aircraft from the United States at a total cost of about US$5.8 billion.

Following Taiwan's democratization in the 1990s, U.S. arms sales became subject to domestic political debate in Taiwan. When a single party controlled the presidency and the legislature, this was relatively unproblematic, but when the Democratic Progressive Party (DPP) won the presidency in 2000, the Kuomintang (KMT) continued to control the legislature, leading to gridlock on a number of important issues of national policy. The challenges this entailed for U.S. arms sales to Taiwan quickly became evident. In April 2001 the United States offered to sell Taiwan an arms package that was unprecedented in size and content, including 8 diesel-electric submarines, 4 decommissioned Kidd-class destroyers, and 12 P-3C Orion maritime patrol aircraft; later the same year the Bush administration agreed to release several additional items, including PAC-3 missile defense systems. The total cost of the items offered was well over US$15 billion, which led President Chen Shuibian of the DPP to request legislative approval of a special budget to pay for the big ticket items.

Funding for the major items included in the package became highly controversial in Taiwan's domestic political environment, pitting President Chen against the KMT-controlled legislature. Many KMT members of the legislature argued that the weapons were outdated and overpriced, and their opposition delayed consideration of some of the key components of the arms sales package for several years. The challenges of attempting to reach agreement on funding for the

arms package caused problems in U.S.-Taiwan relations. Indeed the prolonged debate over the special budget became a major point of contention between Washington and Taipei.

Despite these problems, Taiwan eventually agreed to purchase many of the key components of the arms sales package, including the Kidd-class destroyers, maritime patrol aircraft, and PAC-3 missile defense batteries. The resolution of the lengthy debate over the 2001 arms sales package, however, has been largely overshadowed by the positive developments in cross-Strait relations that have taken place since the KMT's victory in Taiwan's 2008 presidential election. Since taking office, President Ma Ying-jeou has emphasized the importance of a stable and constructive relationship with the mainland as a cornerstone of Taiwan's national security policy. The two sides have made significant progress on economic issues, highlighted by the resumption of direct cross-Strait flights and shipping. Although many contentious issues remain to be resolved, the possibility of a genuine warming of the China-Taiwan relationship appears to be the best it has been in well over a decade.

Despite these recent improvements in cross-Strait relations, however, U.S. arms sales to Taiwan are still vital to the island's security. Even if the possibility of a cross-Strait conflict continues to decline, Taiwan must continue to maintain a strong relationship with the United States and further strengthen its defense capabilities to bolster deterrence and to ensure that it will occupy a strong bargaining position in any future negotiations with China. Consequently, some 30 years after the United States established diplomatic relations with China and withdrew from the U.S.-ROC Mutual Defense Treaty, U.S. arms sales to Taiwan remain a very important—and sometimes very controversial—element of U.S. security policy in the Asia Pacific region.

Michael S. Chase

See also: Bush, George Walker; Carter, James Earl, Jr.; China, People's Republic of (PRC)

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TONKIN GULF RESOLUTION (1964)

Congressional resolution passed in response to the Tonkin Gulf incidents. During 1964 senior Johnson administration officials became increasingly convinced that an acceptable conclusion of the war in South Vietnam would require some form of armed attack on North Vietnam and began to consider obtaining a congressional resolution that endorsed U.S. military action. President Lyndon Johnson, wary of the prospect of a major war in Vietnam, was especially determined not to get into such a war without a prior commitment of congres-



President Lyndon Johnson signs the August 1964 Gulf of Tonkin Resolution that gave him for all practical purposes a free hand to commit U.S. military resources in Vietnam. (Lyndon B. Johnson Presidential Library)

sional support. As he put it, "I'm gonna getem on the takeoff so they'll be with me on the landing."

In May and June 1964 senior administration officials produced drafts of a possible resolution. They decided not to present these to Congress, however; there seemed too little chance of such a resolution being passed without a politically damaging debate.

In early August it was reported that North Vietnamese torpedo boats had twice attacked U.S. Navy destroyers on the high seas (the Tonkin Gulf incidents)—on the afternoon of the 2nd and on the evening of the 4th. A revised draft of the resolution was quickly presented to the Congress. The crucial passages read:

> Whereas naval units of the Communist regime in Vietnam, in violation of the principles of the Charter of the United Nations and of international law, have deliberately and repeatedly attacked United States naval vessels lawfully present in international waters, and have thereby created a serious threat to international peace; and
>
> Whereas these attacks are part of a deliberate and systematic campaign of aggression that the Communist regime in Vietnam has been waging against its neighbors and the nations joined with them in the collective defense of their freedom. . . .
>
> Congress approves and supports the determination of the President, as Commander in Chief, to take all necessary measures to repel any armed attack against the forces of the United States and to prevent further aggression.
>
> . . . the United States is, therefore, prepared, as the President determines, to take all necessary steps, including the use of armed force, to assist any member or protocol state of the Southeast Asia Collective Defense Treaty requesting assistance in defense of its freedom.

The members of Congress were given the impression that the heart of the resolution, the aspect they should consider voting for or against, was the passage about supporting the president in repelling armed attacks on U.S. forces. They were told that they should not worry about the implications of the next paragraph that authorized the president to do whatever he felt necessary to assist South Vietnam, since the administration had no intention of escalating American involvement in the war. Most

accepted these assurances and the resolution passed on August 7—unanimously in the House of Representatives; and with only two dissenting votes, by Ernest Gruening (D-Alaska) and Wayne Morse (D-Oregon), in the Senate.

After Johnson had sent U.S. combat forces to Vietnam and cited the Tonkin Gulf Resolution as his authority, many who had voted for the resolution regretted their action, and some began to investigate the circumstances. They found that the first attack (on August 2, 1964) had not been so clearly unprovoked as they had been told; that there was reason to doubt that the second attack (on August 4) had ever happened; and that the administration had been working on preliminary drafts of such a resolution, which it wanted precisely because it was considering an escalation of the war long before the incidents had arisen. By 1968 the resulting disillusionment had become a serious liability for the administration.

When Senator Morse first proposed in 1966 that Congress repeal the Tonkin Gulf Resolution, there was hardly any support. Sentiment gradually shifted, however, and the Resolution was finally repealed by a vote in both houses of Congress at the end of 1970.

Edwin E. Moise

See also: Johnson, Lyndon Baines; Vietnam War

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TRUMAN, HARRY S. (1884–1972)

U.S. senator (1935–1944), vice president (January–April 1945), and president (1945–1953). Born in Lamar, Missouri, on May 8, 1884, Harry S. Truman worked as a construction timekeeper, bank teller, and farmer before seeing combat in World War I as an artillery captain in France. He then opened a clothing store in Kansas City, but it soon failed, leaving him with large debts. He won election as county judge in 1922 with the backing of the political machine of Tom Pendergast in nearby Kansas City. Truman's record of efficiency and fair-mindedness earned him considerable praise. A Democrat, he was elected to the U.S. Senate in 1934, where colleagues appreciated his hard work, modesty, and amiability. Reelected in 1940, he gained national prominence during World War II as chair of a Senate committee investigating corporate waste, bureaucratic incompetence, contractor fraud, and labor abuse in the defense industry.

Truman, the surprise choice for the vice presidential candidate on President Franklin D. Roosevelt's successful 1944 reelection ticket, had no international experience when he assumed the presidency upon Roosevelt's death in April 1945. Truman closely guarded his authority and took actions that were decisive and at times impulsive. This was especially true in foreign affairs, where he immediately faced the challenge of emerging discord with the Soviet Union. As a senator, Truman had favored wartime aid to the Soviets but suggested shifting U.S. support to the Nazis once communist forces had the



U.S. President Harry Truman (center) shakes the hands of British Prime Minister Winston Churchill (left) and Soviet Premier Josef Stalin (right) during opening day of the Potsdam Conference in Berlin, Germany, on July 25, 1945. (Harry S. Truman Library)

advantage. Only days into his presidency, he sharply rebuked Soviet Foreign Minister Vyacheslav I. Molotov, sternly lecturing him about trying to dominate Poland. This contretemps was a harbinger of Truman's hard-line policy toward the Soviet Union.

In July 1945 Truman and Soviet leader Josef Stalin met at the Potsdam Conference but did not reach agreement

on any major issues. While there, the president received word that the test explosion of an atomic bomb had succeeded, although he only made an ambiguous reference about this to Stalin. Truman subsequently ordered atomic attacks on two Japanese cities in August. His justification was to save lives, but he may have also used Hiroshima and Nagasaki to intimidate the Soviets and keep them out of the Pacific war. Just before Japan surrendered, the Soviets entered the war in the Pacific, resulting in Korea's division into two zones of occupation. Truman rejected Stalin's request for a similar arrangement in Japan, appointing General Douglas MacArthur to implement sweeping reforms there under complete U.S. control. After 1947 a reverse course in U.S. policy transformed Japan into an anticommunist bulwark in Asia and a security partner of the United States in the Cold War.

Meanwhile, Truman struggled to end the civil war in China between the Guomindang (GMD, Nationalists) and the Chinese Communist Party (CCP) led by Mao Zedong. Late in 1945 Truman sent General George C. Marshall to negotiate a cease-fire and a political settlement, which never took hold. Marshall returned home in early 1947, became secretary of state, and advised Truman to disengage from China. By then Truman had decided to implement the containment policy against the Soviet Union.

Truman's application of pressure at the United Nations (UN) had forced Soviet withdrawal from Iran in 1946. His Truman Doctrine speech in March 1947 called for U.S. aid to any nation resisting communist domination. Congress then approved Truman's request for $400 million for Greece (to suppress a communist insurgency) and Turkey (to check Soviet advances). A proposal in June 1947 to help Europe avert economic collapse and keep communism at bay led to the Marshall Plan, an ambitious and successful endeavor that helped reconstruct war torn economies.

Stalin's reaction to Truman's successes greatly intensified the Cold War, beginning early in 1948 with the communist coup in Czechoslovakia. The Soviets then blockaded West Berlin to force U.S. and British abandonment of the city, but Truman ordered an airlift of food and supplies that compelled Stalin to restore access one year later. Countering the Soviet threat led to the 1949 creation of the North Atlantic Treaty Organization (NATO) and a U.S. commitment of military defense for Western Europe. Truman sent U.S. troops and huge amounts of military assistance across the Atlantic, but he refused to replicate this policy in China, resisting Republican pressure to expand support for Jiang Jieshi's Nationalist regime. This led to charges that Truman had allowed disloyal American diplomats to undermine the Nationalists and lose China after the communists triumphed in October 1949. The Soviet explosion of an atomic bomb that September only increased popular anxiety in the United States. As fears of internal subversion grew, Truman appeared to be soft on communism when Senator Joseph R. McCarthy, an obscure Wisconsin Republican, charged that 205 communists worked in the State Department.

Early in 1950 Truman approved development of a hydrogen bomb, but initially refused to implement National Security Council Report NSC-68, which called for massive rearmament. He would not approve NSC-68 until

September of that year. When the Democratic People's Republic of Korea (DPRK, North Korea) attacked the Republic of Korea (ROK, South Korea) in June, Truman committed troops because he believed that Stalin had ordered the invasion and that inaction would encourage further expansionist acts. He then ordered military protection for Jiang's regime on Taiwan and greater support for the anticommunist efforts of the British in Malaya and the French in Indochina. Even before MacArthur, whom he had named UN commander, had halted the invasion, Truman approved an offensive into North Korea that provoked Chinese intervention. Truman's courageous decision to recall MacArthur in April 1951 for trying to widen the war was highly unpopular but won acclaim from most military observers and European allies. Armistice talks began in July 1951 but deadlocked after Truman refused to force repatriation of communist prisoners. Unable to end the Korean War, he had made the Cold War more dangerous and intense with the implementation of NSC-68, military strengthening of NATO, and the rearming of the Federal Republic of Germany (FRG, West Germany).

Truman left office in January 1953 and returned to Independence, Missouri, to write his memoirs. He died on December 26, 1972, in Kansas City, Missouri.

James I. Matray

See also: Berlin Crises; China, People's Republic of; Cold War; Germany, Federal Republic of; Korean War; Marshall, George Catlett; National Security Council Report NSC-68; North Atlantic Treaty Organization (NATO); Soviet Union (USSR); Weapons, Nuclear; World War I; World War II

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UNITED KINGDOM (UK)

In the early 1960s former U.S. Secretary of State Dean Acheson controversially stated that Britain had "lost an empire and failed to find a role." Britain's post-1945 foreign policies were driven by the desire to maintain, insofar as possible, great-power status, which made it crucial to forge a special relationship with the United States whereby Britain could obtain economic and military assistance from the United States, not least in implementing anti-Soviet policies in Europe. Although Britain was usually the closest U.S. ally, British leaders often found galling their new disparity in status, as the United States replaced Britain as the world's strongest power.

By 1943 British leaders were apprehensive that when World War II ended, Soviet military power and territorial holdings would be greatly enhanced, allowing the communist Soviet Union to dominate much of Eastern Europe. In October 1944 British Prime Minister Winston Churchill negotiated an informal percentages agreement with Soviet Premier Josef Stalin whereby the two leaders delineated their countries' respective spheres of influence. At the February 1945 Yalta Conference, Churchill and U.S. President Franklin D. Roosevelt both acquiesced in effective Soviet domination of most of Eastern Europe. The three leaders also agreed to divide Germany into three separate occupation zones, to be administered by their occupying military forces but ultimately to be reunited as one state. In April 1945 Churchill unavailingly urged American military commanders to disregard their existing understandings with Soviet forces and take and—he apparently hoped—retain Berlin, the symbolically important German capital.

Churchill's successor as prime minister, Labour Party leader Clement Attlee, and his foreign secretary, Ernest Bevin, a firmly anticommunist trade unionist, were equally strong advocates of a policy of firm resistance to Soviet expansion in Europe. Their position, however, was one of relative weakness, as Britain



Leaders of the four great powers, France, the Soviet Union, the United Kingdom, and the United States, during the Paris Summit of 1960. The summit was meant to discuss a possible reduction in nuclear weapons and a general improvement of relations. Attendees included Dwight D. Eisenhower, Nikita Khrushchev, Harold Macmillan, Charles De Gaulle, and Andrei A. Gromyko. (Time Life Pictures/Getty Images)

ended the war near bankruptcy, heavily indebted to the United States for Lend-Lease aid—obligations canceled in return for British pledges to dismantle the sterling area—and faced with heavy and expensive military commitments in Germany, Japan, and Greece and around its far-flung empire. London's foreign debt increased sevenfold during the war, standing at £13.3 billion in June 1945. To finance the war the British had liquidated most of their overseas investments, and the country was running a substantial adverse balance of trade, while wartime bombing had badly damaged existing factories and plants, squeezing Britain's export capacities. In addition, the new Labour government sought to institute ambitious social welfare policies. Without U.S. assistance, Attlee and Bevin believed, Britain's foreign policy goals would remain unattainable.

In 1945 Britain still ruled the greatest empire in history, significant portions of which in Asia were regained in the last months of the war. Budgetary considerations and the desire to allay American anticolonialist sentiment mandated the speedy jettisoning of much of the empire, as did the Labour Party's stated anti-imperialist outlook and the strength of nationalist sentiment, especially in India. In February 1946 Attlee proudly announced plans to grant that country full independence in the near future. This occurred in August 1947, with the largely Muslim northwestern and northeastern provinces choosing to separate from the predominantly Hindu remainder, leaving what became Pakistan.

Within a few years Burma followed suit, although Britain retook and retained for some years those Asian colonies—Malaya, Singapore, and Hong Kong—whose continued possession and administration remained economically profitable.

British initiatives and prompts were highly significant to the making of early U.S. Cold War policies. Conscious of British weakness, especially vis-à-vis the newly menacing Soviet Union, with its power now ensconced across Central and Eastern Europe to the Elbe, Attlee sought to encourage the United States to maintain a close Anglo-American alliance. He was privy to and endorsed Churchill's intention to sound these themes in a major address in the United States, which Churchill did in his famous February 1946 "Sinews of Peace" speech (also known as the "Iron Curtain" speech) at Fulton, Missouri.

By late 1946 budgetary problems left British leaders little alternative but to reduce expensive military commitments. They chose to do so in Greece and Turkey. Greece was facing a major internal communist insurgency, while Turkey was experiencing heavy Soviet pressure for rights to the strategic Dardanelles straits. Attlee and Bevin privately informed President Harry S. Truman and Secretary of State George Marshall of their intention to withdraw sometime before the public announcement, which became the occasion for Truman's February 1947 speech (known as the Truman Doctrine), placing U.S. aid to Greece and Turkey in the broader context of a worldwide anticommunist strategy.

The harsh winter of 1946–1947 caused economic difficulties and generated unrest across Western Europe, bringing further British pleas for U.S. aid. This helped to generate the Marshall Plan, a coordinated program for European economic recovery. British acquiescence in the merging of their and the American occupation zone of Germany and the area's inclusion in the Marshall Plan were contributing factors in the 1948–1949 Berlin Blockade. Attlee and Bevin, already instrumental in establishing a Western European Union defense pact under the March 1948 Treaty of Brussels, urged that only if the United States itself joined a defensive pact would Europe feel secure. This in turn led to the North Atlantic Treaty, signed in Washington in April 1949 by the United States, Canada, and ten West European states. The members of the resultant North Atlantic Treaty Organization (NATO) pledged to come to each other's defense should one be attacked.

By 1950 major differences existed between the United States and Britain on Asian policy over Hong Kong, Indochina, anticolonialism, and especially the new communist People's Republic of China (PRC). Britain, unlike the United States, pragmatically accorded the PRC almost immediate recognition and traded extensively with it. The Korean conflict gave British leaders an opportunity to demonstrate their continuing loyalty and regain the international status that Britain's economic problems and the 1949 devaluation of the pound had eroded. Due to Bevin's poor health and eventual death, during the Korean crisis Attlee was central to British policy making. Urged on by his ambassador in Washington, Sir Oliver Franks, in July 1950 Attlee overrode his reluctant chiefs of staff and committed British troops to the American-led United Nations (UN) forces.

British officials welcomed the massive American enhancement of NATO forces that quickly resulted from the Korean conflict. Fearful, however, of UN commander General Douglas MacArthur's bellicose rhetoric on the potential use of nuclear weapons, they welcomed his removal. Churchill, who regained office in 1951, rejoiced when his old colleague Dwight David Eisenhower, former World War II commander of Allied forces in Europe, became president of the United States in 1953. Fearful of the destructive consequences of nuclear war, especially since both the Americans and the Soviets were developing thermonuclear weapons and since Eisenhower's New Look defense strategy relied primarily upon nuclear rather than conventional forces, Churchill urged Eisenhower to seek rapprochement and arms control agreements with the Soviet Union—advice that reinforced Eisenhower's own proclivities and contributed to his search for coexistence with the new Soviet general secretary, Nikita Khrushchev. Although Eisenhower probably only used this as a convenient excuse to justify his own preexisting inclinations, he cited Churchill's refusal in 1954 to join the United States in mounting air strikes to relieve beleaguered French forces at Dien Bien Phu as the reason that the American government declined to intervene there and help the French continue the conflict.

In 1956, nonetheless, Eisenhower made Britain's reduced status and dependence upon the United States humiliatingly apparent. In 1953 the nationalist Gamal Abdel Nasser took power in Egypt. Initially he sought both military and economic aid from the United States, but the Israeli lobby pressured Congress to deny aid, whereupon Nasser obtained arms from the Soviet bloc. This, in turn, led U.S. Secretary of State John Foster Dulles in 1956 to rescind an earlier American pledge to provide Nasser with funding for his Aswan Dam project, whereupon Nasser nationalized the Suez Canal, co-owned by the British and French governments. While joining Dulles in negotiations to resolve the crisis, Britain and France secretly collaborated with Israel on war against Egypt to regain the canal, mounting an invasion in early November 1956 just prior to the U.S. presidential election. Dulles and Eisenhower exerted financial and military pressure on all three powers to withdraw, which they eventually did, but the episode greatly embittered Anglo-American relations.

Anthony Eden's successor as prime minister, the half-American Harold Macmillan, an old wartime colleague of Eisenhower's who was also connected by marriage to John F. Kennedy, valiantly attempted to restore the relationship. From 1957 to 1962 the two countries signed a series of defense agreements on the sharing of nuclear information, according Britain exclusive rights to use American nuclear technology in return for U.S. rights to deploy military weapons on British bases. The United States also promised Skybolt missiles and then sold Polaris missiles to Britain. In addition, in 1959 Eisenhower finally committed the United States to defend the British colony of Hong Kong, once an embarrassing colonial survival, now a "Free World" bastion.

As they became increasingly embroiled in both the Middle East and Asia, American leaders perceived Britain's military forces and imperial holdings as useful adjuncts to their own undertakings. Between 1948 and 1960

British troops successfully suppressed a communist insurgency in Malaya, after which the country received its independence. Plagued by various financially and militarily burdensome nationalist and guerrilla movements in many of Britain's African colonies, in 1960 Macmillan publicly announced that in response to "winds of change," Britain would speedily grant independence to its remaining colonies, a pledge largely fulfilled by 1970. During the 1960s growing U.S. military involvement in Vietnam helped to divide the United States from its European NATO allies, all of whom ignored forceful American requests to commit military forces to the conflict, in part because of strong domestic political opposition and major antiwar protests.

Britain did, however, provide intelligence information and logistical support to U.S. forces in Vietnam. In addition, British Prime Minister Harold Wilson cited British anticommunist efforts in Malaysia and Indonesia as major contributions supplementing American efforts elsewhere in Southeast Asia. President Lyndon B. Johnson's administration deplored Britain's 1967 decision to withdraw British military forces east of the Suez and the near contemporaneous devaluation of the pound, which undercut U.S. efforts to maintain the post-World War II Bretton Woods international exchange system of fixed-rate currencies. Johnson was nonetheless grateful these had not come earlier.

Wracked by major economic and social problems for much of the 1970s, Britain was less significant to American foreign policy and the relationship languished. Conservative Prime Minister Edward Heath (1970–1974) looked toward Europe, not the United States. He finally succeeded in negotiating British entry into the European Economic Community (EEC) in 1973, after two earlier failed attempts during the 1960s. Many believed that this marked a permanent reorientation of British foreign policy in favor of Europe at the expense of both the United States and the British Commonwealth. The Labour government that replaced Heath in 1974 faced serious internal problems, including a strong party faction favoring withdrawal from NATO. So severe were British economic difficulties that in 1976 the country had to seek a substantial and humiliating loan from the International Monetary Fund (IMF). This was granted only in return for major cuts in British public spending.

In 1979, however, the right-wing Conservative Party politician Margaret Thatcher won election as prime minister. She was determined to restore British greatness and the free market and was staunchly anticommunist and pro-American in outlook. The more jovial but equally ideological Ronald Reagan, elected U.S. president in November 1980, admired and respected her as an intellectual soul mate. They soon forged a close political and personal friendship. Initially the two embarked on firmly anti-Soviet policies, cutting social welfare spending but increasing defense budgets. In the 1982 Falklands War, Thatcher's determination to resist Argentine seizure of British-owned islands won Reagan's admiration and ultimately received significant military and intelligence support from his administration. The two governments cooperated closely on defense and other issues. Thatcher was the only European leader to support Reagan's 1986 bombing of the Libyan capital of Tripoli, an action

taken in retaliation for alleged terrorist activities. She also overrode substantial domestic opposition to stationing short- and intermediate-range American nuclear-armed cruise missiles on British soil, symbolized by the camp that antinuclear protestors established in 1980 and maintained for several years outside Greenham Common Air Base in Berkshire.

After the reformist Mikhail Gorbachev became Soviet general secretary in March 1985, Thatcher met with him and urged Reagan to have faith in his expressed desire to moderate the Cold War. Her prompts apparently weighed heavily with Reagan in his own subsequent meetings with Gorbachev, which began the process of Soviet-American rapprochement that eventually brought an end to the Cold War. When Iraqi dictator Saddam Hussein annexed Kuwait in 1990, Thatcher reputedly helped to persuade President George H. W. Bush, Reagan's successor, to stand firm. Her successor, John Major, dispatched the second-largest military contingent—after that of the United States—to the consequent 1991 Persian Gulf War.

This pattern continued even after the Cold War ended, with Britain the most reliable military ally of the United States. Having forged a close relationship with President William "Bill" Clinton, British Prime Minister Tony Blair developed an equally strong bond with President George W. Bush, breaking with much of his own Labour Party to join the war against Iraq in 2003. Regardless of political affiliation and temporary estrangements notwithstanding, from 1945 onward most British prime ministers looked to the United States as their perennial and most reliable ally.

Priscilla Roberts

See also: Acheson, Dean Gooderham; Berlin Crisis; Bush, George Herbert Walker; Bush, George Walker; China, People's Republic of (PRC); Clinton, William Jefferson; Cold War; Eisenhower, Dwight David; France; German Democratic Republic (GDR, East Germany; Germany, Federal Republic of (FRG, West Germany; Johnson, Lyndon Baines; Kennedy, John Fitzgerald; Korean War; Marshall, George Catlett; New Look Defense Policy; North Atlantic Treaty Organization (NATO); Persian Gulf War I; Persian Gulf War II; Reagan, Ronald Wilson; Roosevelt, Franklin Delano; Soviet Union (USSR); Truman, Harry S.; Vietnam War; World War II

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UNITED STATES AIR FORCE

The U.S. Army Air Forces (USAAF) ended World War II as the largest and most powerful air force in the world. By the end of the conflict, the AAF comprised some 2.4 million personnel in 16 separate air forces (12 of them overseas) and 243 groups (later designated as wings). The important role played by the AAF in the war helped bring about realization of the goal long sought by its leaders of an independent air force.

The National Security Act, passed by Congress and signed into law by President Harry S. Truman in July 1947, established the U.S. Air Force (USAF) as an independent armed service. The USAF established three major combat commands in the United States: the Strategic Air Command (SAC), the Tactical Air Command (TAC), and the Air Defense Command (ADC). The concept of strategic bombardment, which the AAF had embraced in World War II, continued to receive emphasis, and under General Curtis E. LeMay, SAC became the dominant USAF command. It controlled the long-range bomber force and the nation's nuclear delivery



An Air Force B-57 Canberra bombs a suspected Viet Cong jungle position in North Vietnam on March 17, 1967. The longest bombing campaign ever conducted by the U.S. Air Force, Operation ROLLING THUNDER lasted from March 1965 to October 1968. (AP/Wide World Photos)

capability. SAC also assumed responsibility for aerial tankers to extend the strike range of the bombers. SAC gained responsibility for intercontinental ballistic missiles (ICBMs) when they entered the U.S. force structure in the late 1950s.

Created in 1946 the ADC and TAC were initially merged into the Continental Air Command in December 1948, but were separated two years later. The USAF used TAC and theater commands overseas to conduct aviation missions in support of theater operations, including air superiority, ground attack (close air support and interdiction), reconnaissance, and airlift in the Military Air Transport Service (MATS). MATS demonstrated its importance during the 1948 to 1949 Berlin Airlift.

First Secretary of the Air Force Stuart Symington (1947–1950) and air force leaders argued for a 70-wing air force, but budget retrenchment following World War II led to aggressive force reductions, resulting in an actual force structure of 48 wings. Nonetheless, because of the perception of airpower and atomic weapons as a war-winning combination, the USAF became the dominant service in terms of funding and political support, and SAC was clearly the most influential command in the U.S. defense establishment during the 1950s. The onset of the Korean War (1950–1953) brought significant improvement and increased spending for more personnel and new aircraft, leading to a 235-wing force in 1956.

Airpower did play a key role in the Korean War. It was certainly one of the most important factors in enabling United Nations Command (UNC) personnel to stand at the Pusan Perimeter until the United States could affect its military buildup and take the offensive. Propeller-driven Boeing B-29 Superfortress bombers destroyed the industrial base of the Democratic People's Republic of Korea (DPRK, North Korea) and soon ran out of meaningful targets. U.S. airpower continued to savage North Korean and, later, Chinese supply lines and exacted a heavy toll on their ground personnel. Communist Mikoyan-Gurevich MiG-15 interceptor aircraft, initially flown by Soviet pilots, however, forced the UNC to abandon strategic daytime bombing. The Lockheed F-80 Shooting Star, the first U.S. mass-produced jet aircraft, and the more capable Republic F-84 Thunderjet proved no match for the MiG-15, although on November 8, 1950, an F-80 did shoot down an MiG-15 in the first clash between jet aircraft in history. A worthy opponent for the MiG appeared in the North American F-86 Sabre, hastily rushed to Korea. These two jet aircraft were well matched, but the F-86s racked up an impressive kill ratio, thanks to superior pilot training.

Top USAF leaders nonetheless concluded that the Korean War had been an anomaly, and they continued to invest significant resources in SAC programs. SAC's first strategic bomber was the propeller-driven Boeing B-50 Superfortress, introduced in 1947. Basically a vastly improved B-29, it was certainly outclassed by jet aircraft. In 1948 the Convair B-36 Peacemaker six-engine bomber entered service. With a gross weight of 410,000 pounds, it was the world's largest aircraft. The B-36 was also the world's first intercontinental bomber and was capable of carrying up to 72,000 pounds of munitions. It remained in service until 1959. The first four-engine American jet bomber was the North American B-45 Tornado. Entering production in 1948, it served in

Korea in a reconnaissance role and was in service for a decade. The Boeing B-47 Stratojet medium bomber was one of the most important of USAF aircraft. Sleek and futuristic and the first swept-wing bomber ever in production, the B-47 entered service in 1951. Boeing's follow-on aircraft to the B-47, the B-52 Stratofortress, entered service in 1955. The Stratofortress has been in service for more than 50 years. Certainly one of the most important aircraft ever produced, it was capable of carrying a 40,000-pound payload 8,800 miles. B-52s are closely identified with the Cold War and played a leading role in the Vietnam War, even acting in support of ground operations. They are best remembered, however, for their role in the December 1972 Christmas Bombing of Hanoi and Haiphong. In 1960 SAC received the sleek Convair B-58 Hustler. In service for a decade, the large delta-configuration B-58 was capable of a speed of 1,385 mph—the world's first supersonic bomber.

The Vietnam War not only saw the USAF carry out operations in direct support of ground troops but also conduct the highly publicized bombing of North Vietnam (Operations ROLLING THUNDER, LINEBACKER I, and LINEBACKER II) and the secret bombing of Laos (Operations BARREL ROLL and STEEL TIGER) and Cambodia (Operation MENU). The interdiction campaigns were frustrating in that they never could completely halt the infiltration of men and supplies by the Democratic Republic of Vietnam (DRV, North Vietnam) into the Republic of Vietnam (RVN, South Vietnam), but they certainly did make it much more difficult for the communist side in the war and kept many North Vietnamese troops and weapons out of South Vietnam. The campaigns did reveal the limitations of airpower in nonconventional warfare, however. U.S. airpower, to include the U.S. Navy and the U.S. Marine Corps, did play an important role in such battles as the action in the Ia Drang Valley, the 1968 Tet Offensive, and the siege of Khe Sanh, and certainly airpower was a key factor in North Vietnam's invasion of South Vietnam in the Spring or Easter Offensive of 1972.

In 1957 the United States launched its first ICBM, and shortly thereafter SAC also controlled nuclear-armed ICBMs. By the end of the 1960s SAC controlled more than 1,000 ICBMs as the number of nuclear-capable bombers dwindled. The bombers and ICBMs combined with the navy's submarine-launched ballistic missiles (SLBMs) to create the triad nuclear deterrence force. Coordination in targeting and the development of the nuclear Single Integrated Operations Plan was the responsibility of the Joint Strategic Target Planning Staff, collocated at Offutt Air Force Base with SAC headquarters. SAC was disestablished on June 1, 1992, following the end of the Cold War. Its nuclear planning and command and control role continued in the Unified Command, U.S. Strategic Command, and its operational forces were dispersed to other USAF major commands: bombers and missiles to Air Combat Command (missiles later moved to Space Command) and tankers to Air Mobility Command.

In the early Cold War years, the offensive capability of SAC was complemented by extensive USAF air defense forces. The ADC was responsible for the interceptor fighters dedicated to the defense of the continental United States. The command also directed the early warning radar system and the command

and control structure that coordinated all air defense resources, including resources provided by other services in an emergency. The ADC became the U.S. component of the North American Air Defense Command (NORAD), and the ADC commander normally served simultaneously as the NORAD commander as well. As space systems became increasingly important to warning and defensive operations, the USAF renamed the command the Aerospace Defense Command in 1968. The ADC was headquartered at Ent Air Force Base, Colorado, and then at Peterson Field, Colorado. The ADC was inactivated in March 1980, and its functions were dispersed to other major commands, primarily SAC, TAC, and eventually Space Command.

Prominent interceptor aircraft flown by the USAF in this period included the Northrop F-89 Scorpion and the Lockheed F-94 Starfire. These aircraft entered service in 1950 and served for a decade, employing radar intercept capabilities for night and bad weather operations. The North American F-86D Sabre of 1951 was the first USAF single-seat all-weather jet interceptor. The North American F-100 Super Sabre appeared in 1954 and served until 1979. It was the first USAF fighter to cruise at supersonic speeds and was designed as an interceptor. The Lockheed F-104 Starfighter appeared in 1958 as an interceptor but ended its career as a ground attack aircraft. The second generation of air defense systems included the McDonnell Douglas F-101B Voodoo, Convair F-102 Delta Dart, and Convair F-106 Delta Dagger interceptors.

The TAC was established in 1946 to control and train forces that would work with U.S. Army units in theater operations. TAC's primary missions were securing air superiority and providing support to the ground forces through close air support, interdiction, and reconnaissance missions. TAC was merged into the Continental Air Command in 1948. In December 1950 the USAF returned TAC to major command status, reflecting the demands of the Korean War on theater air resources. TAC was headquartered at Langley Air Force Base in Virginia. The USAF converted TAC to Air Combat Command in 1992 as part of the post-Cold War reorganization.

The F-80, F-84, and F-86 were among the first jet fighters. They were followed in the 1950s by day-fighter designs that had a secondary ground-attack role, especially the Super Sabre and the Starfighter. Over time, both the F-100 and the F-104 became primarily ground-attack platforms. In the mid-1960s the USAF adapted the navy-designed McDonnell Douglas F-4 Phantom as a multirole aircraft to perform the air superiority and ground-attack roles. The McDonnell Douglas F-15 Eagle was the first USAF design specifically for air superiority. It entered service in 1974 and saw extensive service in the 1991 Persian Gulf War. It also performed brilliantly for the Israeli Air Force. The General Dynamics F-16 Fighting Falcon of 1980, conceived as a lightweight multirole complement to the F-15, combined air-to-air and ground-attack capabilities.

Fighter-bomber, attack, and reconnaissance aircraft included the Thunderjet of 1947. It saw extensive service in a variety of missions during the Korean War. Reflecting the nuclear-oriented force structure of Dwight D. Eisenhower's presidency, the USAF embraced the Republic F-105 Thunderchief fighter-bomber as a supersonic nuclear weapons

delivery system. In a conventional bombing role, it bore the brunt of the air war over North Vietnam.

The superb Phantom entered service in 1960 and served extensively in Vietnam, where it established an enviable combat record. The Phantom remained in service throughout the Cold War period. The General Dynamics F/FB-111 Aardvark was the first operational combat aircraft with a swing-wing. Finally mention must be made of the F-117A Nighthawk stealth fighter. In appearance unlike any other aircraft and making use of radar absorbent materials, the triangular-shaped F-117A appeared in 1983 and first saw action in the 1989 U.S. invasion of Panama. It also participated extensively in the Persian Gulf War, hitting targets with great precision. In reconnaissance aircraft, Lockheed produced perhaps the world's two best in the Cold War: the U-2 (1956) and the SR-71 (1964).

Of major USAF overseas commands, the two most important were the United States Air Forces in Europe (USAFE) and the Pacific Air Forces (PACAF). USAFE was established in August 1945 and served as the air force component of the U.S. European Command. USAF theater forces in the Pacific were initially organized as the Far East Air Forces. In 1957 the designation shifted to PACAF, which was the USAF component of the U.S. Pacific Command.

Airlift emerged as a vitally important function during World War II. This continued in the Cold War. In 1948 the Air Force Air Transport Command and the Navy Air Transport Service were merged to create MATS, which was charged with providing all necessary airlift support to the U.S. military. The USAF changed MATS to the Military Airlift Command (MAC) in 1966. MAC became the air force component to U.S. Transportation Command, the unified command responsible for moving and sustaining U.S. combat forces. In addition to military aircraft, MAC managed contracted airlift and the Civil Reserve Air Fleet (CRAF), which provided an additional surge airlift capacity in national emergencies. MAC was headquartered at Scott Air Force Base, Illinois. During the post-Cold War USAF reorganization in 1992, MAC was renamed Air Mobility Command and gained control of the tanker aircraft that had previously been assigned to SAC.

McDonnell Douglas provided a large number of transport aircraft in this period. Among these were the workhorse C-47 Skytrain (the military version of the DC-3); the C-54 Skymaster (the civilian DC-4), the first four-engine U.S. military transport; the C-74 Globemaster, at its introduction in 1945 the world's largest transport plane; the C-118 Liftmaster (the DC-6 in civilian service); the C-124 Globemaster, the USAF's first strategic cargo plane; and the C-133 Cargomaster. Lockheed also provided noteworthy Cold War transport aircraft, including the C-121 Super Constellation; the C-130 Hercules; and the C-141 Starlifter, in 1965 the world's first all-jet air transport aircraft. Lockheed's giant C-5 Galaxy entered service in 1969 and held the title as the world's largest operational aircraft for more than 15 years. The twin-engine Fairchild C-119 Flying Boxcar entered service in 1949 and served with distinction in Korea and in Vietnam. Tanker aircraft include the McDonnell Douglas KC-10 Extender and Boeing KC-135 Stratotanker.

The USAF was heavily involved in the development of space systems from its origin as a separate service and became

the lead agency for space launches, working closely with other government agencies, especially the Central Intelligence Agency (CIA) and the National Reconnaissance Office, to develop a wide range of space-based capabilities. Initially the development and launch of satellite systems were the responsibilities of the Air Research and Development Command (ARDC), which also dealt with aircraft and other weapons system designs. The USAF redesignated ARDC the Air Force Systems Command (AFSC) in 1961. The rapidly increasing importance of space led the USAF to establish the Air Force Space Command in September 1982. Air Force Space Command provided launch support and operational control of space platforms and became the lead agency for U.S. military space activities. It also assumed some of the ADC component functions in NORAD and in 1985 became the air force component of the U.S. Space Command.

The USAF relied on a number of supporting major commands to develop and sustain its capabilities. The Air Force Logistics Command (AFLC, Air Matériel Command until 1961) provided supply and maintenance support. In the post-Cold War reorganization of 1992, the USAF merged the AFLC and the AFSC into Air Force Matériel Command. An additional important command for the USAF was Air Training Command (ATC), the organization that provided all of the formal training for USAF personnel, including flight training for pilots and navigators and technical training for all career fields. The USAF later renamed the ATC the Air Education and Training Command.

USAF doctrinal emphasis on deep attacks in pursuit of decisive effects often placed it in conflict with the other services, which believed that airpower should be used in a support role to assist the surface forces in traditional campaigns against enemy surface forces. In addition to seeking decisive offensive victories, USAF doctrine emphasized the importance of technological dominance and the need for pursuing advanced capabilities. As the Cold War ended, USAF theater airpower and space power, developed to deter and if necessary engage Soviet power, was nonetheless highly effective in providing the foundation for victory in Operation DESERT STORM, the 1991 campaign to liberate Kuwait from Iraqi occupation.

The end of the Cold War brought a considerable decline in USAF strength. In 1987 the USAF had 171 wings, 7,245 active duty aircraft, and 607,000 personnel. By 1991 these numbers had fallen to 153 wings (115 wings by 1995), 4,710 aircraft, and 388,100 personnel. Air National Guard (ANG) and Air Force Reserve (AFR) totals experienced similar declines, from 263,000 to 181,000 personnel.

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See also: Bomber Gap; Central Intelligence Agency (CIA); Cold War; Eisenhower, Dwight David; Korean War; Truman, Harry S.; United States National Security Act; Vietnam War; Weapons, Air; Weapons, Nuclear; Weapons, Space

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UNITED STATES ARMY

The U.S. Army emerged from World War II as the best-armed, most-mobile, best-equipped, best-supplied, most-educated, and highest-paid army in history. Immediately following the end of the war, President Harry S. Truman supported a measured reduction from 8.2 million to 1.5 million men, but domestic political pressures resulted in an army drawdown to fewer than 591,000 personnel in 10 divisions and 5 regiments by June 1950. The 1947 National Security Act, designed to unify the nation's armed forces and decrease interservice rivalries, established the U.S. Air Force as independent from the army and designated the army as having primary responsibility for land-based operations.

Despite streamlining of command structure in the late 1940s, low budgets contributed to a dramatic decline in army combat effectiveness. By 1950 few of the army's 10 divisions were fully capable of deployment outside the continental United States. Four understrengthed, poorly trained, and inadequately equipped divisions were in occupation in Japan, while 80,000 men were in Germany.

The Korean War began in June 1950. American advisors and troops rushed from Japan helped purchase just enough time to prevent Democratic People's Republic of Korea (DPRK, North Korea) forces from completely overrunning the Republic of Korea (ROK, South Korea) before substantial forces could be sent from the United States. This also presented serious difficulties, as the army was stretched thin trying to keep up its guard in Europe with the formation of the North Atlantic Treaty Organization (NATO) in 1949.

The war revealed the appalling state of the U.S. military, especially the army, which had undergone major cutbacks under Defense Secretary Louis Johnson, who favored the air force over both the army and navy. Troops were often sent into combat without proper training, and equipment was both obsolete and inadequate. The buildup in Korea was made possible only by calling up reserve and national guard units, which also had the effect of securing experienced combat veterans. Most of the weaponry



Helicopters pick up a rifle company from the field in Vietnam in the early 1960s. An innovative concept introduced during the Vietnam War, airmobility entailed the use of helicopters to find the enemy, carry troops to battle, provide them with gunship support, position artillery, and provide communications and supplies. (U.S. Army Center of Military History)

employed by the army in Korea was of World War II vintage.

Massive U.S. artillery fire and airpower helped to offset Chinese numbers. The war not only saw the army carry out extensive experimentation with the helicopter for medical evacuation but also for resupply and the movement of troops. In addition, the war hastened desegregation of the army. During the conflict the defense budget quadrupled, and the army grew dramatically in size. By 1953 army strength stood at 20 divisions and 18 regiments with a total of 1.5 million personnel. The Korean War also acted as a stimulus to research and development programs, which brought new weapons into the field in the latter 1950s and early 1960s, and ensured that the United States maintained a significant military establishment. After every previous conflict, the United States had largely disarmed.

With an armistice in Korea in July 1953, the new administration of President Dwight D. Eisenhower sought to shift emphasis to nuclear deterrence in the so-called New Look policy (popularly known as "more bang for the buck"). By 1958 army strength had again decreased, this time to 15 divisions. Under the New Look the army prepared to use flexible but short-range nuclear munitions to offset the greater

manpower of potential enemies in Europe and Asia. In the mid-1950s the army developed the Jupiter and Nike missiles as well as artillery systems capable of firing nuclear munitions. In order to increase survivability and mobility on nuclear battlefields, the army introduced the M41, M47, and M48 tanks, reestablishing 4 armored divisions by 1956.

Structurally, because nuclear weapons could easily destroy concentrated groups of soldiers, the army reorganized its units into decentralized and autonomous pentomic divisions, consisting of five battle groups that could operate independently or join together to provide mass and firepower. By 1958 the army had divided all of its infantry and airborne divisions into pentomic structures.

In the early 1960s political events in Latin America as well as the Berlin Crises and the Cuban Missile Crisis intensified the Cold War. President John F. Kennedy's administration became concerned with combating the domino effect of encroaching communism while providing a more balanced approach to military threats. This strategy, known as flexible response, called for an increase in the army's conventional force structure to provide a nonnuclear response to future threats. It also emphasized counterinsurgency warfare.

In the 1960s Secretary of Defense Robert S. McNamara spearheaded a wholesale reorganization of the army that consolidated redundant structures and decreased inefficiencies. Largely due to previous programs coming to fruition, the army received the M60 machine gun and the M60 tank and replaced its outdated M-1 Garand rifle with the M-14, and a few years later the M-16. The army also abandoned the pentomic division structure and established traditional three-brigade Reorganization Objective Army Divisions (ROADs), including mechanized divisions equipped with the M113 armored personnel carrier. While the army's doctrine for its ROADs centered on fighting in nonnuclear battlefields, its primary focus remained linear battles in the European theater.

As the Soviet Union and the United States approached nuclear parity, however, the army also began to prepare to counter a newly emerging threat of guerrilla-style communist insurgencies. In 1961 Kennedy significantly increased the size and scope of Special Forces units for counterinsurgency operations. Special Forces soldiers became expert in the tactics, techniques, and procedures of both defeating guerrilla movements and training indigenous soldiers, particularly as special advisors in Vietnam.

America's involvement in Vietnam, which had begun with support for the French in the Indochina War (1946–1954), rapidly escalated with the renewal of the insurgency in the late 1950s. President Kennedy sent only advisors and helicopters, but in mid-1965 his successor, Lyndon B. Johnson, introduced U.S. ground troops. The war gradually escalated, and at peak strength in early 1969 the United States had 543,400 men in Vietnam.

For the U.S. Army the Vietnam War meant adapting to an assortment of new challenges. Enemy force capabilities ranged from squad-sized local Viet Cong units employing guerrilla tactics to well-trained North Vietnamese Army regiments and divisions supported by conventional artillery assets. The enemy could slip into local population centers and the jungle underbrush, which made locating him difficult. Additionally,

enemy forces often compensated for their comparative lack of firepower by fighting at night and establishing well-placed ambushes, booby traps, and mines.

The army adapted to these challenges by employing a mixture of new tactics and new weapon systems to fight in this nonlinear battlefield. The Vietnam War also saw the United States make extensive use of the helicopter, and in August 1965 it introduced in Vietnam the 1st Air Cavalry Division, which was entirely air mobile. Helicopter operations significantly improved the ability to mass, reinforce, and withdraw forces if necessary in remote areas not easily accessible to ground transportation.

Despite the army's overwhelming success in pitched battles with North Vietnamese regulars, the United States failed to secure victory in Vietnam. It had concentrated on big-unit actions and body counts rather than on pacification programs as measurements of success.

The army emerged from Vietnam in terrible condition. The war exacted a shocking toll on both discipline and morale. Racial problems abounded as did insubordination, and a general permissiveness led to careerism or "ticket-punching" among the officer corps and an abrogation of authority by noncommissioned officers. During the mid-1970s all branches of the armed services, but particularly the army, suffered from underfunding and congressional and executive neglect.

The army sought an all-volunteer force. Its Volunteer Army Project (VOLAR), begun in 1970, received President Richard Nixon's warm support. He embraced the plan as a means of ending middle-class opposition to his Vietnam War policies, and he abolished the draft in 1973. The U.S. armed forces, including the army, became all-volunteer.

Recruiting standards were upgraded, and discharge programs helped to rid the army of drug users and those unsuited for military life. In 1975 the army insisted on a high school diploma for its recruits. It also began a massive educational program to eradicate perceived and actual racial discrimination. The number of African American officers increased, and promotion boards ensured that minorities were promoted equally based on percentages of numbers of those serving. Other initiatives such as barracks renovation and involving enlisted men by seeking their ideas on how to improve quality of life ended many irritants of the draft era. Another major change was allowing women increased opportunities in occupational specialties, although supposedly not in combat units. Army Chief of Staff General Creighton Abrams (1972–1974) and Secretary of Defense Melvin Laird (1969–1974) also did much to create a total force policy that restructured the entire army to make it impossible for political leaders to commit the army to war without mobilizing its reserve components. This was successively the case in the Persian Gulf War, the Balkans, Afghanistan, and Iraq.

As the Vietnam War faded, the army refocused its attention on what had always been considered the most significant threat: a potential Warsaw Pact invasion of Western Europe. The 1973 Arab-Israeli War convinced U.S. Army leaders that new advances in the lethality of tank munitions, artillery, and wire-guided antitank weapons created dramatic advantages for defenders in a conventional mechanized war. Technologically, these new advances required the army to modernize its antiquated

equipment and develop a new tank, infantry fighting vehicle, and helicopter. Doctrinally, in 1976 the army emphasized establishing an active defense policy, an elastic strategy comprised of battle positions organized in depth that focused on firepower and attrition.

It was not until the advent in 1981 of President Ronald Reagan's administration, which focused on directly confronting Soviet capabilities in Europe, that the army received full modernization funding. The M1 Abrams Main Battle Tank, supported by the Bradley Infantry Fighting Vehicle, became the basis of maneuver warfare. In 1982, under the direction of General Donn Starry, the army adopted the AirLand Battle doctrine. Designed to deter the Soviet Union, AirLand Battle revolutionized army doctrine by shifting emphasis from defensive to offense operations and employing maneuver warfare that involved coordination of joint forces, especially close air support. Units would train to strike hard and fast to disrupt and attack the enemy's critical second-echelon forces. The U.S. Army proved the effectiveness of its training, doctrine, and equipment-modernization efforts shortly after the Cold War ended during the 100-hour ground offensive against Iraq in the 1991 Persian Gulf War.

At the end of the Cold War in 1991, U.S. Army strength stood at 739,594 active duty and close to 1.085 million Army Reserve and National Guard personnel.

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See also: Berlin Crises; China, People's Republic of (PRC); Cold War; Cuban Missile Crisis; Eisenhower, Dwight David; Flexible Response; Germany, Federal Republic of (FRG, West Germany); Johnson, Louis Arthur; Johnson, Lyndon Baines; Kennedy, John Fitzgerald; Korean War; McNamara, Robert Strange; New Look Defense Policy; Nixon, Richard Milhous; North Atlantic Treaty Organization (NATO); Persian Gulf War I; Persian Gulf War II; Reagan, Ronald Wilson; Soviet Union (USSR); Truman, Harry S.; United States National Security Act; Vietnam War; Weapons, Land; Weapons, Nuclear; World War II

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UNITED STATES MARINE CORPS (USMC)

Marines are similar to soldiers in that their primary mission is to fight on land. However, the U.S. Marine Corps (USMC) is part of the Department of the Navy and serves in close coordination with the U.S. Navy. Thus, primary Marine Corps missions are amphibious



U.S. marines coming ashore at Da Nang on March 8, 1965. The marines were dispatched to the Republic of Vietnam to protect U.S. air bases and were the vanguard of U.S. ground troops in the country. (UPI-Bettmann/Corbis)

invasions, noncombatant evacuation operations (NEOs), and internal security onboard ships. Moreover, Marines have traditionally guarded U.S. embassies.

During the Cold War the USMC fought in Korea, Vietnam, Grenada, Panama, and the Persian Gulf. They were also involved in smaller-scale operations, such as interventions in both Lebanon and the Dominican Republic, NEOs from Cyprus and Cambodia, the *Mayaguez* Incident, and Lebanon. The USMC also stood prepared to wage a third world war against the Soviet Union by reinforcing Norway and Denmark's Jutland Peninsula.

The USMC drastically downsized as part of the demobilization following World War II, going from a peak of 485,053 personnel during the war to 107,000 by the late 1940s. Some politicians, including President Harry S. Truman, wanted to disband the USMC, as they thought that amphibious operations were obsolete in the atomic age and that the army could absorb the USMC's mission. However, the performance of the USMC in Korea in 1950 quelled this debate.

Marines took part in the desperate fighting along the Pusan Perimeter. They also spearheaded the amphibious landing at Inchon that turned the tide in the war in September 1950. Marines subsequently helped liberate Seoul in bloody house-to-house fighting. General Douglas MacArthur then ordered the Marines to seize Wonsan in an unopposed amphibious assault and simultaneous drive north to the Yalu River. The drive to the Yalu, however, brought Chinese intervention, and in late

November 1950 some 100,000 men of the Chinese 9th Army Group cut off the 1st Marine Division near the Changjin (Chosin) Reservoir in bitter winter weather. Despite the desperate situation, in one of the great military withdrawals in all history, the Marines fought their way south, bringing out their wounded, dead, and equipment. The USMC later participated in United Nations Command (UNC) offensives, defense against the 1951 Chinese Spring Offensive, and UNC counteroffensives.

Following the Korean War the USMC enjoyed a period of relative calm punctuated by smaller operations. In July 1958 following a request by the Lebanese government, President Dwight D. Eisenhower sent Marines to Beirut. The Marines maintained general order there before being withdrawn in mid-October. The April 1965 Dominican Intervention saw the Marines evacuate more than 3,000 U.S. citizens during political upheaval there. Subsequently more than 8,000 Marines and additional U.S. Army troops enforced the peace.

Marines also served as advisors to the Republic of Vietnam (RVN, South Vietnam). The USMC deployed its first operational unit, the Medium Helicopter Squadron 362, to Vietnam on April 15, 1962. The 9th Marine Expeditionary Brigade deployed to Vietnam as the first USMC ground combat unit on March 8, 1965. The Marines were deployed to the northern provinces of South Vietnam. Marines played a crucial role in defeating the January 1968 Tet Offensive, especially in retaking Hue. They also held the Khe Sanh base during a prolonged siege by Democratic Republic of Vietnam (DRV, North Vietnam) troops. The Marines were active in pacification programs, especially with their innovative Combined Action Platoons. Marine units began withdrawing from South Vietnam in 1970. All USMC ground and air operations in Vietnam ceased in June 1971. The final Marine role came in April 1975, when Marine units assisted with the evacuation of Americans and South Vietnamese during the fall of Saigon to communist forces.

The early 1970s marked a period of recovery for the USMC, which had been badly bruised during the decade-long Vietnam involvement. Once again the USMC prepared for traditional amphibious operations missions. However, Marines did evacuate U.S. citizens from Cyprus in July 1974 and from Cambodia in April 1975. Conflict with Cambodia continued with the capture of the U.S. ship *Mayaguez* and its crew on May 12, 1975. President Gerald R. Ford ordered in the Marines, who retook the ship three days later.

In 1983 President Ronald Reagan sent Marines to Lebanon to monitor the evacuation of the Palestine Liberation Organization (PLO). However, attacks on the Marines culminated in the October 23, 1983, suicide truck bombing of the office building holding the Marine headquarters. The blast killed 239 Americans, 220 of them Marines. Reagan pulled all American forces out by late February 1984 in large part because of this devastating attack. The USMC participated in Operation URGENT FURY, the U.S. invasion of Grenada in October 1983 ordered by Reagan. During the Iran-Iraq War (1980–1988), Reagan deployed Marines to help protect oil tankers in the Persian Gulf against attack, a mission that lasted from 1986 to 1989.

Marines also participated in the 1989 Panama invasion, Operation JUST CAUSE, securing key installations, seizing critical bridgeheads, controlling vital crossroads, and processing 1,200 captured Panamanians.

When Iraqi forces invaded Kuwait on August 2, 1990, President George H. W. Bush deployed the Marines to protect Saudi Arabia from an Iraqi incursion (Operation DESERT SHIELD). During the ground offensive (Operation DESERT STORM) in an advance on Kuwait City in the Battle of Khafji, Marine units easily repulsed two Iraqi armored columns in the largest tank battle in USMC history. Two Marine brigades feigned an amphibious landing from ships in the Persian Gulf, which fixed Iraqis in eastern Kuwait and facilitated the Coalition's western envelopment. Undoubtedly the USMC played an important role during the Cold War.

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See also: Bush, George Herbert Walker; China, People's Republic of (PRC); Cold War; Eisenhower, Dwight David; Ford, Gerald Rudolph; Korean War; Persian Gulf War I; Persian Gulf War II; Reagan, Ronald Wilson; Soviet Union (USSR); Truman, Harry S.; United States Navy; Vietnam War

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UNITED STATES NATIONAL SECURITY ACT

Passed by the U.S. Congress in July 1947, the National Security Act restructured the foreign policy and military bureaucracy of the U.S. government. Since World War I, Congress had debated greater unification to halt the longstanding rivalry among the nation's military services, whose lack of integration and coordination was criticized by politicians and the media in the aftermath of the U.S. tragedy at Pearl Harbor. During World War II the various military and intelligence services were coordinated through informal arrangements. After the war, a more permanent arrangement was sought by the Truman administration in order to improve the management of defense and foreign policy. Several boards and agencies were created by the National Security Act, including the National Security Resources Board, the Central Intelligence Agency (CIA), and the National Security Council (NSC). The act reflected the desire of foreign policy makers and the military to meet the challenges of the Cold War while keeping the nation permanently prepared for conflict.

The National Security Act abolished the War Department and authorized a new cabinet position, the secretary of defense, to coordinate programs of the newly created National Military Establishment, which included the Department of the Army and the Department of the Navy, as well as the new Department of the Air Force, now officially designated as a coequal independent military

service. President Harry Truman appointed James Forrestal as the first U.S. secretary of defense. The creation of the position of secretary of defense downgraded the secretaries of war, navy, and air force from cabinet positions, but the National Security Act legally recognized the Joint Chiefs of Staff, which had been created during World War II as a unified high command to exercise authority over the armed forces. The Joint Chiefs of Staff consists of the chairman, the chief of staff of the army, the chief of naval operations, the chief of staff of the air force, and the commandant of the marine corps. The position of vice chairman was added in 1986.

The National Security Resources Board was created by the National Security Act to oversee future mobilization planning. The CIA, successor to the World War II Office of Strategic Services, was created by the act to handle foreign intelligence gathering operations under the supervision and direction of the NSC, which was initiated to inform and advise the president on national defense and security matters. The official council members are the president, vice president, secretary of state, and secretary of defense. The director of the CIA and the chairman of the Joint Chiefs of Staff are statutory advisors. The council staff is directed by the president's assistant for national security affairs, commonly referred to as the national security advisor, a position created in 1953. Documents passed through the NSC have prompted some of the most important U.S. foreign policy initiatives, such as of the Cold War era's influential NSC-68.

In 1949 the National Security Act was amended to give more power to the secretary of defense, who now acquired clear authority over the secretaries of the three military branches. As a result of the amendment, the National Military Establishment was renamed the Department of Defense. Changing the National Military Establishment into the Department of Defense further reduced the power of the secretaries of the three military branches, but the creation of the department and the permanent Joint Chiefs of Staff have given the armed forces a large and enduring presence in U.S. society.

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See also: Central Intelligence Agency (CIA); National Security Council Report NSC-68; National Security Resources Board (NSRB); Truman, Harry S.

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UNITED STATES NAVY

The U.S. Navy's primary mission was, and is, to ensure the command of the seas. Command of the seas allows unfettered U.S. commerce and military sea lines of communication. Thus, the U.S. economy can continue to operate, and U.S. forces can move across the sea to foreign soil. Conversely, the U.S.



A Navy lieutenant aims his flaming arrow at a hut across the river that conceals a Viêt Công (VC) bunker on December 8, 1967. Operation Game Warden, conducted by the U.S. Navy from 1965 to 1970, aimed to halt VC military operations on the waterways. (Bettmann/Corbis)

Navy's command of the seas interdicts the maritime commerce and military activities by enemies of the United States. After Japan's formal surrender on the deck of the U.S. battleship *Missouri* on September 2, 1945, the U.S. Navy's mission to maintain command of the seas took many forms, from launching carrier strikes to diplomatic shows of force. During the Cold War the navy fought in Korea, Vietnam, Lebanon, Grenada, Panama, and the Persian Gulf; enforced a quarantine of Cuba during the Cuban Missile Crisis; and helped prevent a communist Chinese invasion of Taiwan. The navy's submarines armed with nuclear missiles, which formed one leg of the U.S. strategic triad, also played a key role. Finally, if a president needed a show of muscle, he often sent a carrier task force to impress a foreign power or intimidate a potential adversary.

The U.S. Navy drastically downsized as part of the post-World War II general demobilization, shrinking from 3 million to 1 million sailors. It also ceased construction of more than 150 warships and several thousand small craft and decommissioned 2,600 others. Nevertheless, the navy's commitments were still immense, and the American government called upon the navy frequently. A show of force to deter a possible communist coup during the Italian elections of 1948 was one of the first examples of the navy in action during the Cold War. Twenty-five percent of the aircraft that participated in the Berlin Airlift belonged to the navy. Furthermore, U.S. Navy units protected Taiwan from the threat of a communist Chinese invasion.

After World War II many U.S. political leaders believed that a large navy was no longer necessary. Thus, the U.S. Navy continually had to fight for funding for operations and new equipment. For example, 27 days after taking office, on April 23, 1949, Secretary of Defense Louis A. Johnson canceled the navy's new 60,000-ton supercarrier *United States* without consulting either the secretary of the navy or the chief of naval operations. The navy argued that it needed the new supercarriers, as existing carriers were too small to handle multiengine jet aircraft capable of delivering nuclear weapons. Johnson, a former secretary of the air force, favored the B-36 bomber, but his decision precipitated a vicious battle over the roles of the services. The navy fought back against Johnson to the extent that some senior officers went to the press. The media referred to this fight as the Revolt of the Admirals.

Despite this temporary setback, the U.S. Navy was able to start construction of four frigates and three hunter-killer submarines. It also began development of new carrier aircraft capable of delivering nuclear weapons as well as development of nuclear ship propulsion. Especially important in the latter area was the work by Captain Hyman Rickover in developing nuclear power plants for submarines.

The U.S. Navy did not have a serious or prolonged fight to gain command of the seas during the Korean War, but it did play a vital role in the conflict. Naval air and gun support slowed the Democratic People's Republic of Korea (DPRK, North Korea) drive to conquer the Republic of Korea (ROK, South Korea) and assisted in maintaining United Nations Command (UNC) forces in the Pusan Perimeter. The navy transported X Corps in the Inchon amphibious assault and provided air and naval gunfire support. The navy also cleared mines from Korean harbors, including Wonsan, on the eastern coast of North Korea and it made possible the withdrawal of X Corps from Hungnam and other points on the northeastern coast of Korea following Chinese entry into the war at the end of 1950. The navy continued to provide key air and naval gunfire support for ground operations until the armistice on July 27, 1953.

The performance of the U.S. Navy during the Korean War demonstrated its key role in U.S. global security operations and led to more political support and funding, including new programs under National Security Council Report NSC-68. This included Forrestal-class supercarriers, new naval aircraft, and destroyers and guided-missile cruisers. The submarine *Nautilus,* the world's first nuclear-powered warship, entered active service in early 1955. The navy began development of submarine-launched ballistic missiles (SLBMs) in 1959, and USS *George Washington* made the first operational patrol armed with SLBMs in November 1960. The navy's nuclear submarines became one-third of the U.S. strategic triad, alongside intercontinental ballistic missiles (ICBMs) and strategic bombers carrying nuclear bombs. During this period of rebuilding, the navy also supported the Marines in the Lebanon Intervention of 1958 and in the evacuation of U.S. civilians during the Dominican Intervention of 1965.

The Cuban Missile Crisis was a signal event in the Cold War when the United States and the Soviet Union came closest to nuclear Armageddon. In October 1962 U.S. policy makers learned that Cuba,

with Soviet assistance, was building medium-range ballistic missile (MRBM) sites. After much deliberation, President John F. Kennedy ordered the navy to impose a blockade of Cuba and prevent the Soviet Union from bringing in additional supplies and missiles for the MRBM launch sites. The navy enforced the quarantine and was prepared to conduct combat operations if necessary. After Soviet leaders backed down, Second Fleet warships closely monitored the dismantling of the Cuban MRBM threat to the continental United States.

After the crisis the Soviets began building a balanced navy due to their inability to challenge the U.S. Navy during the Cuban Missile Crisis. While the U.S. Navy tried to develop enhanced strategic capabilities in the form of an extended-range Polaris missile and an improved submarine capable of launching ballistic missiles, another threat loomed on the horizon in the form of the Vietnam War.

U.S. Navy ships were involved in intelligence gathering (DESOTO patrols) in the Gulf of Tonkin off the coast of the Democratic Republic of Vietnam (DRV, North Vietnam) when on August 1, 1964, North Vietnamese torpedo boats attacked the destroyer *Maddox.* A second alleged attack on August 4 on the *Maddox* and another destroyer, the *Turner Joy,* almost certainly did not occur. President Lyndon B. Johnson nonetheless ordered retaliatory air raids against North Vietnamese coastal targets, and the U.S. Congress passed the Tonkin Gulf Resolution, authorizing the president to use U.S. military resources as he deemed fit in Vietnam.

The U.S. Navy's involvement in Vietnam took many forms. In Operation MARKET TIME the navy executed offshore interdiction of North Vietnamese vessels seeking to infiltrate men and supplies into the Republic of Vietnam (RVN, South Vietnam) and in Operation GAME WARDEN it fought the communist Viet Cong for control of South Vietnam's vital and extensive river systems. Navy aircraft provided key air support to ground troops in South Vietnam from carriers off the coast of South Vietnam (Dixie Station). The navy also provided important gunfire support to operations near the coast as well as shelled North Vietnam, and it supported amphibious operations by U.S. and South Vietnamese forces.

U.S. Navy aircraft participated in Operation ROLLING THUNDER, the air war against North Vietnam, from carriers stationed off the coast of North Vietnam (Yankee Station). Washington's goals for ROLLING THUNDER were to halt the infiltration of men and supplies into South Vietnam and to force North Vietnamese leaders to abandon their support for the communist insurgency in South Vietnam and come to the negotiating table. Although the operation exacted a considerable toll on North Vietnam, it failed to achieve its goals. The cost was also high due to the sophisticated and growing North Vietnamese air defense network. In 37 months between 1965 and 1968, the navy lost 421 planes and 450 aviators. The navy also helped train personnel and then turned over substantial assets in vessels and equipment to the South Vietnamese Navy as part of the Vietnamization program.

Washington subsequently called upon the U.S. Navy to execute numerous other missions. The navy supported the evacuation of U.S. citizens from Cyprus in July 1974, and then from Cambodia and from South Vietnam in April 1975. The navy also assisted in operations to retake

the *Mayaguez* and its crew when they were taken captive by the Khmer Rouge in Cambodia in May 1975.

The U.S. Navy struggled during Jimmy Carter's presidency as a consequence of the standoff between the president and Congress. Despite being a former naval officer, President Carter did not wish to expend large sums on the navy, while Congress sought to increase its funding. The election of Ronald Reagan as president in November 1980 led to a massive military buildup that revitalized the navy and saw it come close to Reagan's goal of 600 ships.

When President Reagan sent Marines into Lebanon in 1983, Arab attacks of Marine installations escalated, and the U.S. Navy provided naval gunfire support to thwart the attacks. Nevertheless, the suicide truck-bomb attack on the Marine barracks in Beirut effectively ended U.S. involvement in Lebanon in February 1984. The navy also provided key assistance in the Grenada Invasion of October 1983 and in the invasion of Panama during December 1989 and January 1990.

During the Iran-Iraq War of 1980 to 1988, the belligerents began attacking oil tankers in the Persian Gulf. The U.S. Navy executed freedom of navigation operations to ensure U.S. access to oil from the Persian Gulf, clearly maintaining command of the sea. However, unique operational difficulties existed in a confined area such as the Persian Gulf. Iranian mines and antiship missiles were significant threats. A missile attack on USS *Stark* on March 17, 1987, killed 37 American sailors. In another major incident in the area, on July 3, 1988, the U.S. cruiser *Vincennes* mistakenly fired on an Iranian civilian jetliner, killing 290 passengers.

When Iraqi dictator Saddam Hussein's forces invaded Kuwait on August 2, 1990, President George H. W. Bush ordered the U.S. Navy to protect Saudi Arabia from potential Iraqi aggression in Operation DESERT SHIELD. Naval aircraft and gunfire assisted UN Coalition forces in significantly deterring Iraqi attacks. Navy Harpoon precision-guided missiles played a vital role in attacking Iraqi targets. Furthermore, U.S. Navy and Marine Corps aircraft made up 30 percent of the sorties flown in the resultant coalition war with Iraq, Operation DESERT STORM, that ultimately liberated Kuwait and crushed Iraqi forces.

The U.S. Navy had proven its indispensable mettle during more than 40 years of Cold War tension and in countless hot wars between 1945 and 1991, when the Cold War officially ended.

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See also: Bush, George Herbert Walker; Carter, James Earl, Jr.; China, People's Republic of (PRC); Cold War; Cuban Missile Crisis; Johnson, Lyndon Baines; Kennedy, John Fitzgerald; Korean War; National Security Council Report NSC-68; Persian Gulf War I; Persian Gulf War II; Reagan, Ronald Wilson; Soviet Union (USSR); Tonkin Gulf Resolution; United States Marines; Vietnam War; Weapons, Nuclear; Weapons, Sea

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V

VIETNAM WAR (1957–1975)

The Vietnam War grew out of the Indochina War (1946–1954). The 1954 Geneva Conference, ending the Indochina War between France and the nationalist-communist Viet Minh, provided for the independence of Cambodia, Laos, and Vietnam. Agreements reached at Geneva temporally divided Vietnam at the 17th Parallel, pending national elections in 1956. In the meantime Viet Minh military forces were to withdraw north of that line and the French forces south of it. The war left two competing entities, the northern Democratic Republic of Vietnam (DRV, North Vietnam) and the southern French-dominated State of Vietnam (SV), each claiming to be the legitimate government of a united Vietnam.

In June 1954 SV titular head Emperor Bao Dai appointed as premier the Roman Catholic Ngo Dinh Diem, whom Bao Dai believed had Washington's backing. Diem's base of support was narrow but had recently been strengthened by the addition of some 800,000 northern Catholics who relocated to southern Vietnam. In a subsequent power struggle between Bao Dai and Diem, in October 1955 Diem established the Republic of Vietnam (RVN, South Vietnam) with himself as president. The United States then extended Diem aid, most of which went to the South Vietnamese military budget. Only minor sums went to education and social welfare programs. Thus, the aid seldom touched the lives of the preponderantly rural populace. As Diem consolidated his power, U.S. military advisors also reorganized the South Vietnamese armed forces. Known as the Army of the Republic of Vietnam (ARVN, South Vietnamese Army) and equipped with American weaponry, it was designed to fight a conventional invasion from North Vietnam rather than deal with insurgency warfare.

Fearing a loss, Diem refused to hold the scheduled 1956 elections. This jolted veteran communist North Vietnamese



In early August 1964, two incidents occurred with U.S. destroyers and North Vietnamese torpedo boats in the Tonkin Gulf that prompted President Lyndon B. Johnson to order retaliatory air strikes, and to ask Congress to authorize the Tonkin Gulf Resolution. The incidents and the retaliatory measures taken propelled the United States into a new, more aggressive phase of the war. (Library of Congress)

leader Ho Chi Minh. Ho had not been displeased with Diem's crushing of his internal opposition but was now ready to reunite the country under his sway and believed that he would win the elections. North Vietnam was more populous than South Vietnam, and the communists were well organized there. Fortified by the containment policy, the domino theory, and the belief that the communists, if they came to power, would never permit a democratic regime, U.S. President Dwight D. Eisenhower's administration backed Diem's defiance of the Geneva Agreements.

Diem's decision led to a renewal of fighting, which became the Vietnam War. Fighting resumed in 1957 when Diem moved against the 6,000 to 7,000 Viet Minh political cadres who had been allowed to remain in South Vietnam to prepare for the 1956 elections. The Viet Minh began the insurgency on their own initiative but were subsequently supported by the North Vietnamese government. The South Vietnamese communist insurgents came to be known as the Viet Cong (VC). In December 1960 they established the National Liberation Front (NLF) of South Vietnam. Supposedly independent, the NLF was controlled by Hanoi. The NLF program called for the overthrow of the Saigon government, its replacement by a "broad national democratic coalition," and the "peaceful" reunification of Vietnam.

In September 1959 North Vietnamese Defense Minister Vo Nguyen Giap

established Transportation Group 559 to send supplies and men south along what came to be known as the Ho Chi Minh Trail, much of which ran through supposedly neutral Laos. The first wave of infiltrators included native southerners and Viet Minh who had relocated to North Vietnam in 1954. Viet Cong sway expanded, spreading out from safe bases to one village after another. The insurgency was fed by the weaknesses of the central government, by the use of terror and assassination, and by Saigon's appalling ignorance of the movement. By the end of 1958 the insurgency had reached the status of conventional warfare in several provinces. In 1960 the communists carried out even more assassinations, and guerrilla units attacked ARVN regulars, overran district and provincial capitals, and ambushed convoys and reaction forces.

By mid-1961 the Saigon government had lost control over much of rural South Vietnam. Infiltration was as yet not significant, and most of the insurgents' weapons were either captured from ARVN forces or were left over from the war with France. Diem rejected American calls for meaningful reform until the establishment of full security. He did not understand that the war was primarily a political problem and could be solved only through political means.

Diem, who practiced the divide and rule concept of leadership, increasingly delegated authority to his brother, Ngo Dinh Nhu, and his secret police. Isolated from his people and relying only on trusted family members and a few other advisors, Diem resisted U.S. demands that he promote his senior officials and officers on the basis of ability and pursue the war aggressively.

By now U.S. President John F. Kennedy's administration was forced to reevaluate its position toward the war, but increased U.S. involvement was inevitable, given Washington's commitment to resist communist expansion and the belief that all of Southeast Asia would become communist if South Vietnam fell. Domestic political considerations also influenced the decision.

In May 1961 Kennedy sent several fact-finding missions to Vietnam. These led to the Strategic Hamlet program as part of a general strategy emphasizing local militia defense and to the commitment of additional U.S. manpower. By the end of 1961 U.S. strength in Vietnam had grown to around 3,200 men, most in helicopter units or serving as advisors. In February 1962 the United States also established a military headquarters in Saigon, when the Military Assistance and Advisory Group (MAAG) was replaced by the Military Assistance Command, Vietnam (MACV), to direct the enlarged American commitment. The infusion of U.S. helicopters and additional support for the ARVN probably prevented a VC military victory in 1962. The VC soon learned to cope with the helicopters, however, and again the tide of battle turned.

Meanwhile, Nhu's crackdown on the Buddhists led to increased opposition to Diem's rule. South Vietnamese generals now planned a coup, and after Diem rejected reforms, the United States gave the plotters tacit support. On November 1, 1963, the generals overthrew Diem, murdering both him and Nhu. Within three weeks Kennedy was also dead, succeeded by Lyndon B. Johnson.

The United States seemed unable to win the war either with or without Diem. A military junta now took power, but none

of those who followed Diem had his prestige. Coups and countercoups occurred, and much of South Vietnam remained in turmoil. Not until General Nguyen Van Thieu became president in 1967 was there a degree of political stability.

Both sides steadily increased the stakes, apparently without foreseeing that the other might do the same. In 1964 Hanoi made three decisions. The first was to send to South Vietnam units of its regular army, the People's Army of Vietnam (PAVN), known to the Americans as the North Vietnamese Army (NVA). The second was to rearm its forces in South Vietnam with modern communist-bloc weapons, giving them a firepower advantage over the ARVN, which was still equipped largely with World War II-era U.S. infantry weapons. And the third was to order direct attacks on American installations, provoking a U.S. response.

On August 2, 1964, the Gulf of Tonkin Incident occurred when North Vietnamese torpedo boats attacked the U.S. destroyer *Maddox* in international waters in the Gulf of Tonkin. A second attack on the *Maddox* and another U.S. destroyer, the *Turner Joy,* reported two days later, probably never occurred but Washington believed that it had, and this led the Johnson administration to order retaliatory air strikes against North Vietnamese naval bases and fuel depots. It also led to a near-unanimous vote in Congress for the Gulf of Tonkin Resolution authorizing the president to use whatever force he deemed necessary to protect U.S. interests in Southeast Asia.

Johnson would not break off U.S. involvement in Vietnam, evidently fearing possible impeachment if he did so. At the same time, he refused to make the tough decision of fully mobilizing the country and committing the resources necessary to win, concerned that this would destroy his cherished Great Society social programs. He also feared a widened war, possibly involving the People's Republic of China (PRC).

By 1965 Ho and his generals expected to win the war. Taking their cue from Johnson's own pronouncements to the American people, they mistakenly believed that Washington would not commit ground troops to the fight. Yet Johnson did just that. Faced with Hanoi's escalation, in March 1965 U.S. Marines arrived to protect the large American air base at Da Nang. A direct attack on U.S. advisors at Pleiku in February 1965 also led to a U.S. air campaign against North Vietnam.

Ultimately more than 2.5 million Americans served in Vietnam, and nearly 58,000 of them died there. At its height Washington was spending $30 billion per year on the war. Although the conflict was the best-covered war in American history (it became known as the first television war); it was conversely the least understood by the American people.

Johnson hoped to win the war on the cheap, relying heavily on airpower. Known as Operation ROLLING THUNDER and paralleled by Operation BARREL ROLL, the secret bombing of Laos (which became the most heavily bombed country in the history of warfare), the air campaign was pursued in varying degrees of intensity over the next three-and-a-half years. Its goals were to force Hanoi to negotiate peace and to halt infiltration into South Vietnam. During the war the United States dropped more bombs than in all of World War II, but the campaign failed in both its objectives.

In the air war Johnson decided on graduated response rather than the massive strikes advocated by the military.

Gradualism became the grand strategy employed by the United States in Vietnam. Haunted by the Korean War, at no time did Johnson consider an invasion of North Vietnam, fearful of provoking a Chinese reaction.

By May and June 1965, with PAVN forces regularly destroying ARVN units, MACV commander General William Westmoreland appealed for U.S. ground units, which Johnson committed. PAVN regiments appeared ready to launch an offensive in the rugged Central Highlands and then drive to the sea, splitting South Vietnam in two. Westmoreland mounted a spoiling attack with the recently arrived 1st Cavalry Division (Airmobile) formed around some 450 helicopters. During October and November 1965, the 1st Cavalry won one of the war's rare decisive encounters in the Battle of Ia Drang and may have derailed Hanoi's hopes of winning a decisive victory before full American might could be deployed.

Heavy personnel losses on the battlefield, while regrettable, were entirely acceptable to the North Vietnamese leadership. Ho remarked at one point that North Vietnam could absorb an unfavorable loss ratio of 10 to 1 and still win the war. Washington never did understand this and continued to view the war through its own lens of what would be unacceptable in terms of casualties. From 1966 on, Vietnam was an escalating military stalemate, as Westmoreland requested increasing numbers of men from Washington. By the end of 1966, 400,000 U.S. troops were in Vietnam. In 1968 U.S. strength was more than 500,000 men. Johnson also secured some 60,000 troops from other nations—most of them from the Republic of Korea (ROK, South Korea)—surpassing the 39,000-man international coalition of the Korean War.

Terrain was not judged important. The goals were to protect the population and kill the enemy, with success measured in terms of body counts that in turn led to abuses. During 1966 MACV mounted 18 major operations, each resulting in more than 500 supposedly verified VC/PAVN dead. Fifty thousand enemy combatants were supposedly killed in 1966. By the beginning of 1967 the PAVN and VC had 300,000 men versus 625,000 ARVN and 400,000 Americans.

Hanoi, meanwhile, had reached a point of decision, with casualties exceeding available replacements. Instead of scaling back, North Vietnam prepared a major offensive that would employ all available troops to secure a quick victory. Hanoi believed that a major military defeat for the United States would end its political will to continue.

Giap now prepared a series of peripheral attacks, including a modified siege of some 6,000 U.S. Marines at Khe Sanh near the demilitarized zone (DMZ), beginning in January 1968. With U.S. attention riveted on Khe Sanh, Giap planned a massive offensive to occur over Tet, the lunar new year holidays, called the General Offensive–General Uprising. The North Vietnamese government believed that this massive offensive would lead people in South Vietnam to rise up and overthrow the South Vietnamese government, bringing an American withdrawal. The attacks were mounted against the cities. In a major intelligence failure, U.S. and South Vietnamese officials misread both the timing and strength of the attack, finding it inconceivable that the attack would

come during Tet, sacrificing public goodwill.

The Tet Offensive began on January 31 and ended on February 24, 1968. Poor communication and coordination plagued Hanoi's plans. Attacks in one province occurred a day early, alerting the authorities. Hue, the former imperial capital, was especially hard hit. Fighting there destroyed half the city.

Hanoi's plan failed. ARVN forces generally fought well, and the people of South Vietnam did not support the attackers. In Hue the communists executed 3,000 people, and news of this caused many South Vietnamese to rally to the South Vietnamese government. Half of the 85,000 VC and PAVN soldiers who took part in the offensive were killed or captured. It was the worst military setback for North Vietnam in the war.

Paradoxically, it was also its most resounding victory, in part because the Johnson administration and Westmoreland had trumpeted prior Allied successes, and the intensity of the fighting came as a profound shock to the American people. Disillusioned and despite the victory, they turned against the war. At the end of March, Johnson announced a partial cessation of bombing and withdrew from the November presidential election.

Hanoi persisted, however. In the first six months of 1968, communist forces sustained more than 100,000 casualties, and the VC was virtually wiped out. In the same period, 20,000 Allied troops died. All sides now opted for talks in Paris in an effort to negotiate an end to the war.

American disillusionment with the war was a key factor in Republican Richard Nixon's razor-thin victory over Democrat Hubert Humphrey in the November 1968 presidential election. With no plan of his own, Nixon embraced Vietnamization, actually begun under Johnson. This turned over more of the war to the ARVN, and U.S. troop withdrawals began. Peak U.S. strength of 550,000 men occurred in early 1969. There were 475,000 men by the end of the year, 335,000 by the end of 1970, and 157,000 at the end of 1971. Massive amounts of equipment were turned over to the ARVN, including 1 million M-16 rifles and sufficient aircraft to make the South Vietnamese Air Force the world's fourth largest. Extensive retraining of the ARVN was begun, and training schools were established. The controversial counterinsurgency PHOENIX program also operated against the VC infrastructure, reducing the insurgency by 67,000 people between 1968 and 1971, but PAVN forces remained secure in sanctuaries in Laos and Cambodia.

Nixon's policy was to limit outside assistance to Hanoi and pressure the North Vietnamese government to end the war. For years American and South Vietnamese military leaders had sought approval to attack the sanctuaries. In March 1970 a coup in Cambodia ousted Prince Norodom Sihanouk. General Lon Nol replaced him, and secret operations against the PAVN Cambodian sanctuaries soon began. Over a two-month span, there were 12 cross-border operations, known as the Cambodian Incursion. Despite widespread opposition in the United States to the widened war, the incursions raised the allies' morale, allowed U.S. withdrawals to continue on schedule, and purchased additional time for Vietnamization. PAVN forces now concentrated on bases in southern Laos and on enlarging the Ho Chi Minh Trail.

In the spring of 1971, ARVN forces mounted a major invasion into southern

Laos, known as Operation LAM SON 719. There were no U.S. advisors, and ARVN units took heavy casualties. The operation set back Hanoi's plans to invade South Vietnam but took a great toll on the ARVN's younger officers and pointed out serious command weaknesses.

By 1972 PAVN forces had recovered and had been substantially strengthened with new weapons, including heavy artillery and tanks, from the Soviet Union. They now mounted a major conventional invasion of South Vietnam. Hanoi believed that the United States would not interfere. Giap had 15 divisions. He left only 1 in North Vietnam and 2 in Laos and committed the remaining 12 to the invasion.

The attack began on March 29, 1972. Known as the Spring or Easter Offensive, it began with a direct armor strike across the DMZ at the 17th Parallel and caught the best South Vietnamese troops facing Laos. Allied intelligence misread its scale and precise timing. Giap risked catastrophic losses but hoped for a quick victory before ARVN forces could recover. At first it appeared that the PAVN would be successful. Quang Tri fell, and rain limited the effectiveness of airpower.

In May, President Nixon authorized B-52 bomber strikes on North Vietnam's principal port of Haiphong and the mining of its harbor. This new air campaign was dubbed LINEBACKER I and involved the use of new precision-guided munitions (so-called smart bombs). The bombing cut off much of the supplies for the invading PAVN forces. Allied aircraft also destroyed 400 to 500 PAVN tanks. In June and July, the ARVN counterattacked. The invasion cost Hanoi half its force—some 100,000 men died—while ARVN losses were only 25,000.

With both Soviet and Chinese leaders anxious for better relations with the United States in order to obtain Western technology, Hanoi gave way and switched to negotiations. Finally an agreement was hammered out in Paris that December, but President Thieu balked and refused to sign, whereupon Hanoi made the agreements public. A furious Nixon blamed Hanoi for the impasse, and in December he ordered a resumption of the bombing, dubbed LINEBACKER II but also known as the December or Christmas Bombings. Although 15 B-52s were lost, Hanoi had fired away virtually its entire stock of surface-to-air missiles (SAMs) and agreed to resume talks.

After a few cosmetic changes, an agreement was signed on January 23, 1973, with Nixon forcing Thieu to agree or risk the end of all U.S. aid. The United States recovered its prisoners of war and departed Vietnam. The Soviet Union and China continued to supply arms to North Vietnam, however, while Congress constricted U.S. supplies to South Vietnam. Tanks and planes were not replaced on the promised one-for-one basis as they were lost, and spare parts and fuel were both in short supply. All this had a devastating effect on ARVN morale.

In South Vietnam both sides violated the cease-fire, and fighting steadily increased in intensity. In January 1975 communist forces attacked and quickly seized Phuoc Long Province on the Cambodian border north of Saigon. Washington took no action. The communists next took Ban Me Thuot in the Central Highlands, then in mid-March President Thieu decided to abandon the northern part of his country. Confusion became disorder, then disaster, and six weeks later PAVN forces controlled all

of South Vietnam. Saigon fell on April 30, 1975, to be renamed Ho Chi Minh City. Vietnam was reunited, but under a communist government. An estimated 3 million Vietnamese, soldiers and civilians, had died in the struggle. Much of the country was devastated by the fighting, and Vietnam suffered from the effects of the widespread use of chemical defoliants.

The effects were also profound in the United States. The American military was shattered by the war and had to be rebuilt. Inflation was rampant from the failure to face up to the true costs of the war. Many questioned U.S. willingness to embark on such a crusade again, at least to go it alone. In this sense the war forced Washington into a more realistic appraisal of U.S. power.

In the end one of the lasting effects of the Vietnam War was a continued complacency within the U.S. Military-Industrial Complex. Although the United States produced enormous amounts of high-technology (and correspondingly high-cost) weapons, they had not been successful in a counterinsurgency role. Unfortunately, the Department of Defense continued to concentrate on more conventional weapons systems (and nuclear weapons evolution), which provided impressive government contracts, rather then reenvisioning weapons systems for less conventional and irregular warfare, a much more ambiguous direction. The U.S. Military-Industrial Complex and the U.S. military concentrated on how to win the conventional war rather than reassess and revise doctrine for the more likely irregular wars they were likely to face.

Spencer C. Tucker

See also: China, People's Republic of (PRC); Eisenhower, Dwight David; France; Great Society; Johnson, Lyndon Baines; Kennedy, John Fitzgerald; Nixon, Richard Milhous; Soviet Union (USSR); Tonkin Gulf Resolution

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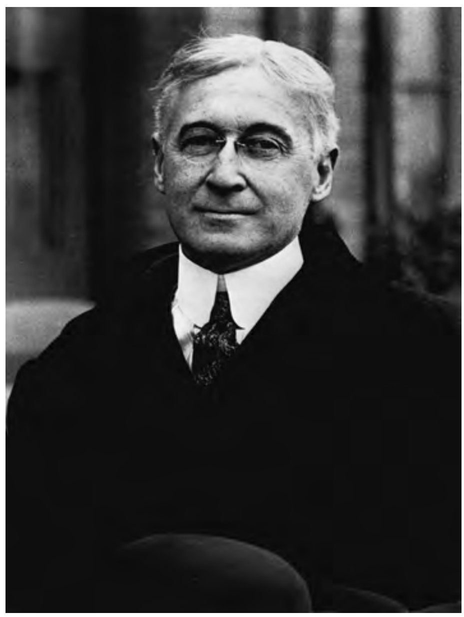
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W

WAR INDUSTRIES BOARD (WIB)

The WIB was one of the first official connections made between the military and industry. During World War I the WIB was established to be the official oversight mechanism between the U.S. Government and American Industry. Created in July 1917, the board of industrialists and military members was established to coordinate industrial production for the military services then entering the war in Europe. The board was initially headed by Frank Scott, one time the chair of the General Munitions Board. Other members included a naval admiral, an army general, and an American Federation of Labor Union representative, Hugh Frayne. The board was most effective under Bernard Baruch, a presidential advisor and financier, when he reorganized the board after his appointment as chair in January 1918.

The WIB was responsible for implementing standardization of military equipment and promoting mass production in



Bernard Baruch advised presidents Woodrow Wilson, Warren Harding, Herbert Hoover, and Franklin D. Roosevelt; chaired the War Industries Board during World War I; and represented the United States at the United Nations Atomic Energy Commission in 1946. (Library of Congress)

American industry in order to increase production of the material requirements for the war. Under its guidance, production for the American military effort in World War I increased over 20 percent.

The WIB also assumed responsibility for negotiating between labor and management during the war, when disputes emerged concerning increased production, overtime, and military demand. Further responsibilities of the WIB included negotiating government costs and workers' compensation in order to avoid and end strikes that emerged. The WIB was effective in balancing demand for materials for the war—keeping production high—while at the same time managing workers' concerns over hours and pay.

S. Mike Pavelec

See also: Labor Movements; World War I

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WAR PRODUCTION BOARD (WPB)

The WPB was a U.S. government agency that between January 1942 and November 1945 oversaw the production and procurement of materials and equipment used by the military in World War II. It took over almost all civilian operations and converted them to war production. It controlled raw materials and components so that civilians could not use them for their own purposes. It set schedules for operations all over the country to ensure that production of war equipment proceeded at maximum efficiency. It also oversaw the transition from a wartime economy to peacetime at the end of the war.

Following the Japanese attack on Pearl Harbor on December 7, 1941, and the U.S. declaration of war, President Franklin D. Roosevelt called for vast military production, demanding 60,000 new airplanes and 45,000 tanks in the first year alone. The nation was nowhere near ready industrially to produce the items needed. Wartime production required that businesses give up their peacetime practices of deliberation and production for the civilian market. They had to move quickly and in a coordinated fashion so as to maximize efficiency. Of course, it took time to refit factories to produce military equipment, and that also required a change in materials. There were not sufficient supplies available to meet all industrial needs, and there were disputes over which industries had a greater need for them. It soon became apparent that the nation needed one authority to oversee industry and allocate scarce resources.

President Roosevelt established the WPB by Executive Order 9024 on January 16, 1942. It was created as part of the Office for Emergency Management under the authority of the First War Powers Act, which gave the president the power to reorganize departments and agencies. The WPB's stated



Pledge to Victory. The war may be won or lost in this plant, War Production Board poster targeting factory labor. For the duration of World War II, Franklin Roosevelt obtained a no-strike pledge from labor and a no-lockout pledge from industry, in the interests of keeping war production on track. (National Archives)

purpose was to direct the war procurement and production program, and to determine policies and procedures of the federal departments and agencies that played a role in war procurement and production. The WPB was headed by a chairman assisted by a chief of operations; an executive officer; and several vice chairmen, each of whom headed a department, including smaller war plants, civilian requirements, programs, field operations, international supply, labor production, manpower requirements, operations, and metals and minerals. Donald M. Nelson was appointed chairman and held this office until 1944, when he was replaced by Julius A. Krug. Despite the presence of the advisors, the chairman really controlled the WPB.

The WPB had regional offices in every state and became a pervading presence in the U.S. consciousness. Citizens of all ages collected paper and metal to use in war production. Conservation came to the fore. Most Americans reportedly were enthusiastic about rationing, seeing it as a way that they could contribute to the war effort. Labor unions promised not to strike during the war, although this was not always the case in practice.

The WPB had tremendous influence on the nation's economy. It decided which companies would receive lucrative wartime contracts. Congress was willing to finance nearly any project that seemed related to the war and appropriated tremendous sums for military spending. The WPB authorized the manufacture of about $185 billion in military supplies between 1942 and 1945. Predictably there were many criticisms leveled at the WPB from both the military and civilians. The military complained that the management was weak and favored civilian needs over those of the military. Civilian businessmen complained about the bureaucracy and the seemingly endless investigations of their needs. Congress lamented the slow pace of military production. Nevertheless, on the whole the WPB was very successful at transforming U.S. industry into a streamlined military production operation.

One of the first actions by the WPB was to stop the production of automobiles in February 1942. Automobile factories were retooled to produce military equipment, such as tanks, airplanes, aircraft engines, diesel engines, trucks, and machine guns. The following month the WPB issued an order regulating clothing production, and in May it ordered sewing machine factories to convert

their operations to producing military equipment. The Singer sewing company's factories began producing airplane navigation equipment, gun turret castings, engine parts for airplanes, gun sights, ammunition boxes, and various sewn items used in war operations. One sewing machine factory was assigned to produce industrial sewing machines that could sew parachutes, tents, and tarpaulins; some of these industrial sewing machines could survive a parachute drop and were thus useful for repairs in the battle zone.

In December 1942 the WPB took responsibility for scheduling the production programs of the various agencies participating in war production to ensure that schedules did not conflict, meshed with the strategic requirements of the Chiefs of Staff, and maximized the productive possibilities of the nation. In February 1943 the WPB took control over the placement of orders for the components used in making important war items. At the time raw materials were readily available but orders for components were often delayed, and WPB control of component production was intended to solve this problem.

In September 1943 the WPB created a program that made it easier for businesses using small amounts of materials to get them without being subject to the WPB's requirements. It also decentralized some operations to regional offices. That October the WPB began concentrating on production on the West Coast, plagued by a lack of labor.

As the war moved toward its conclusion in 1944, the WPB considered the best way to resume civilian production as more resources became available and the military cut back on programs and cancelled wartime contracts. In the summer of 1944 the WPB issued four reconversion orders, allowing civilian enterprises to use aluminum, to purchase machine tools, to resume prewar production operations when facilities and manpower allowed, and once again to construct experimental models. In September 1994 as it became apparent that the war in Europe would soon be over, the WPB announced a policy that would end military control of all civilian production once Germany was defeated.

Increased fighting in the winter of 1944/1945 forced the WPB to resume control of some operations that had been returned to civilian operation. The production of civilian items was reduced again. The WPB was abolished in November 1945. The Civilian Production Administration replaced it and oversaw the conversion of military operations back to civilian control.

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See also: Arms Manufacturers/Defense Industry Contractors; Roosevelt, Franklin Delano; World War II

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WEAPONS, AIR

Although the airplane was invented in the United States, it evinced little interest and sponsorship in the United States dur-



Munitions specialists from the 23rd Tactical Fighter Wing load an AGM-65 Maverick air-to-surface missile onto an A-10A Thunderbolt II prior to a sortie in support of Operation Desert Storm. (Department of Defense)

ing its early years. However, the Wright Brother's invention drew considerable attention and investment in Europe where the great powers of the early 20th century were seeking technologies that provided a significant military advantage. As a result the United States entered World War I with no viable combat aircraft or aerial weaponry. France provided American aviation units with their first fighters, weapons, and training. America's success in that war, and media reporting of American aces' victories in it, inspired a mass fascination with aviation during the interwar period, fed by popular fiction, "barnstormers" who toured the country giving aerial demonstrations and rides, and the adventures and accomplishments of aviation pioneers like Charles Lindbergh and Amelia Earhart. Budget concerns, postwar pacifism, and conservative military opposition to new weaponry limited the transition of that interest into military developments. Aviation pioneers such as Colonel Billy Mitchell were suppressed, even punished for their advocacy, but by the late 1920s saw the rise of a growing number of air power advocates within the U.S. government and military. Aspiring visionary leaders in both services took up flying and tried to apply what they learned to their services' military requirements (e.g., William Moffett, William Halsey, Henry "Hap" Arnold, Earl Spaatz).

Despite their efforts, the United States largely followed rather than led aviation developments in the early 1930s as tensions rose across Asia and Europe. Engine technology was the primary limiter to American aviation weapons development. The European powers developed engines above 1,000 shaft horsepower by 1936; the United States didn't reach that until a year later. Moreover, Europeans increasingly favored more streamlined inline engines while the American designers favored the more easily constructed and hardier but broader-faced radial engines. Inline engines required a radiator that could be damaged easily in battle and rough conditions while radial engines functioned, even when hit directly, as long as most of its cylinders were intact. Radial engines were also simpler and easier to maintain. As a result, the P-40 was the first American fighter to enter service equipped with an inline engine and it was under-powered by European standards. The U.S. Navy preferred radial engines to the end of the piston-engine period while the Army Air

Forces (AAF, later U.S. Air Force [USAF]) came to rely on in-line engines for its fighter aircraft, beginning with the twin-engine P-38 but ending with the P-51, arguable the best piston-engine fighter of World War II (once it was equipped with the British Rolls Royce *Merlin* engine). Radial engines powered AAF bombers into the jet age, driving such famous bombers as the B-17, B-24 thru B-29, and postwar B-36. As with piston engines, America's early jet engines were inferior to British and German designs. In fact American jets did not surpass European models, including Soviet-derivatives of German designs, until after the Korean War.

For weaponry, American aircraft used the .30 caliber Lewis gun and French-built bombs during World War I and shifted to Browning .30 caliber machine guns during the interwar period. The advent of larger, more robust aircraft led to the introduction of the Browning .50 machine gun as the United State's primary aviation weapon for most of World War II, although the P-38, P-39, and P-63 were equipped with an automatic 37mm cannon in their noses. The 37mm gave way to the smaller 20mm cannon in later model P-38s and equipped the twin-engine P-61 night fighter. The Browning proved inadequate for the jet age and gave way to the 20mm late in the Korean War. The recoil-operated 20mm Mark 12 cannon of the 1950s gave way to the electric-chain guns of the Vietnam War, which operated much like the Civil War-era multibarrel Gatling gun. Its electric motor drove the 6-barrel 20mm cannon, giving it a rate of fire exceeding 6,000 rounds per minute. A 3-barrel version can be found on American attack helicopters such as the AH-1 Cobra. The USAF introduced a 30mm version in the A-10 attack aircraft in the late 1970s for use against masses of Soviet tanks. Its 3,000 rounds per minute firing rate proved devastating against Iraq's Soviet-built tanks during Operations Desert Storm and Iraqi Freedom. Finally, other cannons found on USAF aircraft include the 105mm howitzer and 40mm *Bofors* automatic cannon installed on the AC-130, a special attack aircraft based on the popular C-130 airframe.

However, aviation weapons since World War II increasingly have centered on precision weaponry, either guided missiles or guided bombs. The first of these was the USAF's largely unsuccessful AIM-4 *Falcon* air-to-air missile developed in 1954, followed shortly thereafter by the U.S. Navy's AIM-9 *Sidewinder.* Both missiles relied on infrared guidance, that is, they were designed to track and follow the heat from an opposing jet's engine exhaust. However, early models required the American fighter to fire from behind the enemy. That requirement led to the development of radar-guided missiles that could engage an enemy in a head-on engagement. The AIM-7 *Sparrow* missile was the first successful such missile developed and although its early versions proved unsuccessful in Vietnam, later variants continue to serve both the U.S. Navy and Air Force to this day. In fact the latest version of the *Sparrow* and *Sidewinder* constitute the mainstays of American air-to-air weaponry into the 21st century, although the former missile has given way to the longer-ranged and more versatile AIM-120 *AMRAAM*.

The U.S. Navy developed the AIM-54 *Phoenix* air-to-air missile in the 1970s to

provide long-range intercept against Soviet bombers. Weighing over 1,000 lbs each, it could be carried only by the F-14 Tomcat fighter. Moreover, the *Phoenix* was a powerful weapon but it lacked the maneuverability for employment against nimble fighter aircraft, driving the Tomcat to carry a mix of *Sidewinder* and *Sparrow* missiles in case it encountered fighters. The introduction of the AIM-120 on the F/A-18 rendered the *Phoenix* redundant to fleet air defense requirements and its retirement, as well as that of the F-14 by the late 1990s.

American interest in guided air-to-ground weapons began in the 1950s following unexpected losses against North Korean radar-controlled antiaircraft artillery (AAA). The 5-inch *Zuni* rocket had been the primary air-to-ground standoff weapon of World War II and was carried by virtually every fighter and attack aircraft of that war. However, Korea proved that it lacked the range and accuracy to be employed against densely defended targets. Guided weapons offered the option of launching an attack from outside AAA range. The Soviet introduction of surface-to-air missiles, particularly the SA-2 *Guideline* that shot down Gary Powers' U-2 in 1960, accelerated interest in stand-off guided missiles. The USAF developed the *Hound Dog* missile for deep penetration nuclear missions against the Soviet Union, while the U.S. Navy built the conventional warhead *Bullpup* for naval strike missions. The AGM-28 *Hound Dog* used an early inertial guidance system for its 600 nautical miles (nm) trip to the target, while the AGM-12 *Bullpup* used TV-guidance to support the pilot guiding the missile onto a target 10nm away.

The AGM-12 *Bullpup* has been replaced by a family of guided bombs, beginning with the AGM-62 *Walleye* introduced in 1967 and the GBU-series of guidance systems for conventional bombs. Both *Bullpup* and *Walleye* were centered on a 250lb bomb as their warhead, but unlike the *Bullpup,* the pilot did not have to guide the *Walleye* onto the target. It was a "fire and forget" weapon. That is, the pilot or weapons controlled designated the target in the TV screen and the bomb's guidance system took it in to the target. The more powerful *Walleye II* was centered on a 1,000lb bomb, making it much more powerful weapon. The *Walleye*'s range was determined by the aircraft's release altitude and range. Although cheap and comparatively effective, the *Walleye*'s reliance on TV guidance made it unsuitable for employment during poor weather, or battlefield conditions where smoke and dust obscured the target. The *Walleye* remained in service through Desert Storm although it was largely replaced by the AGM-65 *Maverick* missile after 1985.

The Vietnam and Arab-Israeli Wars drove American, indeed global, weapons designs of the 20th century's final three decades. The need to counter enemy radar-controlled air defenses led to the American development of the AGM-45 *Shrike* antiradiation missile (ARM) followed by the AGM-78 *Standard* ARM and the AGM-88 *HARM.* In each case, the missile's range, speed, and ability to identify and remember a wider range of enemy radars was improved. However, the international community's declining tolerance of civilian casualties has become the primary driver in the growing demand for precision weaponry. That

has led to a new family of increasingly accurate air-to-ground weapons systems.

Today's Guided Bomb Units (GBU) can trace their development to those requirements. The laser-guidance systems added to conventional bombs during the Vietnam War have given way to specifically designed guidance systems that incorporate global positioning system (GPS) navigation equipment that enable an aircraft to place each bomb on a precise target location. For example, the GBU-15 is a modular unit normally installed on a 2,000lb bomb. It is equipped with data link that the aircraft's weapons controller can use to guide the bomb to within 1m of the aim point. It also has a GPS system that guides it to the target in the event the data link is lost to an accuracy of within 10 meters (33 feet) of an aim point. Introduced into service in 1994, the AGM-130 is a powered version of the same weapons system, extending the weapon's employment range to beyond 40nm.

The AGM-65 *Maverick,* AGM-84 *Harpoon,* and AGM-114 *Hellfire* missiles were all developed during the 1970s. The *Maverick* missile was intended to provide a multipurpose tactical fire and forget weapon that could be employed against enemy tanks and patrol craft. Developed in both laser and infrared guided versions, it can be carried by every tactical aircraft in the U.S. inventory. The Navy version is equipped with larger (300lb), deep penetrating warhead for use against warships than the 125lb shaped charge warhead used by USAF and U.S. Marine Corps variants, which are intended for antitank and other ground targets. The *Maverick* has a maximum range of 15nm and carries a 300lb warhead. The radar-guided 64nm range AGM-84 *Harpoon* is the air-launched version of the navy's RGM-84 antiship cruise missile. Its 467lb warhead has made it a devastating weapon against the unarmored warships of today. The 5nm range *Hellfire* is a laser-guided antitank missile fired from U.S. Army and Marine Corps attack helicopters, the USAF A-10 *Thunderbolt* aircraft, USN *Seahawk* helicopters, and a variety of American unmanned aerial vehicles (UAVs). The *Hellfire* has become one of the most versatile and employed weapons in America's "Global War on Terrorism" where its accuracy and limited warhead size (20 lbs) has made it the weapon of choice for engaging terrorist leaders in their compounds and convoys.

Although the United States was comparatively late in developing its aviation industry and aerial weapons, its heavy post-World War II investment in all aspects of aviation has given its military the world's most advanced aircraft, weapons and sensor systems. The United States is the only country that deploys stealth aircraft and the only one that has employed them in combat. The same can be said for its development and employment of unmanned aerial vehicles. Much of this is due to the billions of dollars America has invested in its aviation and electronics industries, both commercial and military. However, the advent of financial challenges, declining industrial base and diminishing economic capabilities will affect America's ability to maintain its aerial weapons superiority into the 21st century. However, no obvious challengers to America's military aviation dominance appear likely to rise in the foreseeable future.

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See also: Arnold, Henry Harley "Hap"; Film; Global War on Terrorism (GWOT); Korean War; Media; Persian Gulf War I; Persian Gulf War II; United States Air Force; United States Navy; Vietnam War; World War I; World War II

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WEAPONS, LAND

Land weapons are individual armaments, vehicles, or weapon systems designed primarily for use by army forces against land-based targets. They may also serve in an air-defense capacity, a vital concern for any modern military force. Most are designed primarily for an offensive or defensive capability, although some weapons serve equally well in each role. Land weapons are traditionally categorized as infantry, armor, or artillery weapons, but the most modern systems are adapted to multiple battlefield roles, thus blurring the traditional demarcation between services.

Infantry weapons are armaments borne by individual soldiers fighting on foot. The most basic are firearms, which are designed for a variety of uses from personal defense, such as a pistol, to long-range target engagement, such as a sniper rifle. Certain infantry weapons, such as antitank rockets or surface-to-air guided missiles are designed to counter enemy vehicles. Some small explosive devices, such as hand grenades or land mines, are properly classified as infantry weapons. Heavy infantry weapons, such as mortars and crew-served machine guns are also infantry weapons due to their portability.

Armored vehicles include tanks, armored personnel carriers, and other vehicles sufficiently protected as to withstand at least small-arms fire from the enemy. Tanks often constitute the primary offensive capability of a land force, as they are capable of quickly traversing long distances over rugged terrain and have sufficient firepower to suppress or destroy enemy defensive positions. Most modern tanks have tracks, a large engine, and a single main gun capable of firing a variety of shell types, including high explosive and sabot rounds. Modern tank armor utilizes composite materials, sloped designs, and reactive charges to reduce the thickness of the protection required, and hence the total weight of the vehicle, while still defeating incoming enemy projectiles. However, with the increased power of antitank weapons, modern tanks can still have armor plat-



The M-1 and M-1A1 Abrams are the main battle tanks for the U.S. Army. They are fully tracked, low-profile tanks with shoot-on-the-move capability and a high degree of maneuverability. (Department of Defense)

ing more than 10 inches thick. Like tanks, armored personnel carriers (APCs) may use tracks or wheels, but have far less armor than main battle tanks. Their primary function is to safely and rapidly transport infantry across the battlefield, protecting the troops inside the vehicle from shrapnel and bullets. Most APCs have antipersonnel weapons such as machine guns or small, rapid-fire cannons; some have a limited antitank capability. APCs often serve in a scout capacity as well, relying upon speed and maneuverability rather than heavy armor for defense against enemy vehicles and units.

Artillery consists of long-range weapons firing projectiles or missiles. It may be self-propelled or reliant upon a separate vehicle for transportation. Artillery typically requires a large crew of soldiers to prepare, aim, load, and fire each weapon. It may act in an antipersonnel, antitank, or antiaircraft role, with some of the most versatile artillery pieces capable of multiple functions. The range of artillery varies with the length and diameter of the gun tube, or with the type of missile being fired. The most modern artillery pieces, such as the American M109A6 *Paladin* system, have a range of more than 30 kilometers when firing rocket-assisted projectiles. At such distances artillery crews may be reliant upon land-based forward observers to direct fire, or may use map targeting, global positioning systems (GPS) navigation, radar, or laser targeting. Missile artillery systems, such as the M270 multiple launch rocket system (MLRS), have ranges much greater than artillery pieces—up to 300 kilometers

when firing ballistic missiles. However, the cost of individual missiles is much greater than that of artillery projectiles, thus only the wealthiest modern military forces have invested heavily in missile-based artillery.

A fourth class of weaponry, strategic weapons may also be classified as land weapons in that they are based upon land and designed primarily for use against land targets. The development of ballistic missiles, first tested during World War II and vigorously pursued in the ensuing decades, has resulted in intercontinental ballistic missiles (ICBMs) capable of targeting any location on the earth's surface. Such weapons can exit the earth's atmosphere programmed on a reentry trajectory to strike with devastating force at an indefensible velocity. When coupled with the development and enhancement of nuclear warheads, ICBMs dominated the strategic thinking of world powers in the Cold War era. Although the United States has tested a number of antiballistic missile defense systems, no innovation has proven sufficiently adept at intercepting inbound missiles to merit massive production and deployment in the field.

At the end of World War II, three primary approaches to land weapons had been developed and extensively tested. By 1945 the German *Wehrmacht* had become increasingly dependent upon extremely sophisticated weapons systems, such as the Tiger II tank, the *sturmgewehr* assault rifle, and the 88-millimeter flak artillery piece. While each incorporated highly advanced engineering and proved revolutionary in design, only the flak gun combined dependability and a large production capability with deadly efficiency. Originally designed as an air defense weapon, German flak crews soon discovered that its exemplary design also made it effective in antitank and antipersonnel roles. The Tiger II, while a fearsome armored vehicle with up to 180 millimeters of armor plate and an 88 millimeter main cannon, simply could not be produced in sufficient numbers to turn the tide of the war in Germany's favor. It was mechanically unreliable, and its massive weight prevented it from utilizing most of the bridges of Europe. The *sturmgewehr,* the first true assault rifle, combined a high volume of fire with a light weight. However, like the Tiger II, it was over-engineered and difficult to produce, and while it could fire up to 600 rounds per minute, it was not as accurate as the standard German infantry rifle. Although nearly 500,000 were produced by German manufacturers from 1943 to 1945, it could not be constructed in sufficient numbers to hold off Allied advances. The Germans attempted to make up for the lack of sufficient quantities of material by utilizing new doctrinal concepts, but the operational successes of 1939 to 1941, reliant largely upon deep penetrations of static enemy defenses, simply could not be replicated in 1944 and 1945.

The Soviet approach to weapons design emphasized two primary attributes: dependability and reproduction capability. Of the major belligerents in the war, the Soviet Union spent the least amount of time redesigning weapons. Once a design proved functional upon the battlefield, it normally remained in mass production until the end of the war. By not altering their primary weapons systems unless absolutely necessary, Soviet planners counted the high quality of

German weaponry with the massive quantities churned out by Soviet industry. One of the great technological ironies of the war was the T-34 tank, a rugged, versatile armored vehicle with heavy frontal armor, a reliable engine, and a large main gun. Although it was not capable of engaging and defeating a German Tiger II on an individual basis, rarely was such an engagement necessary. By keeping the design of the T-34 simple, Soviet engineers ensured that it would be the most-produced tank of the conflict. By 1945 Soviet factories had built nearly 60,000 T-34s, compared to fewer than 500 Tiger IIs. The quantity over quality approach meshed well with Soviet doctrine, which called for continual waves of assaulting forces to overwhelm the enemy on a broad front. This approach did not achieve the deep penetrations of German *blitzkrieg* operations, but it did make the occupation and consolidation of territory much more feasible and did not leave flanks or supply routes open to enemy counterattacks.

American weapons engineers attempted to combine the massive industrial capacity of the United States with precise designs that emphasized reliability and versatility. While early American land weapons proved inferior to their Axis counterparts, American weaponry steadily improved throughout the war. Unlike Soviet and German troops, American soldiers tended to extensively modify their equipment, and then report the results of such modifications through the chain of command to be incorporated into later designs. One of the most well-known battlefield modifications occurred in 1944, when American soldiers welded various metal implements to the chassis of tanks to allow penetrations of thick French hedgerows in the bocage. American military forces placed the greatest emphasis upon combined arms operations, relying upon artillery and airpower to pound enemy positions prior to undertaking ground assaults. Such a doctrinal approach emphasized the greatest American asset of the war—industrial capability. American corporations rapidly retooled mass production lines for war materiel. President Franklin D. Roosevelt's 1940 announcement that the United States would serve as the "Arsenal of Democracy" proved no idle boast. Through Lend-Lease, the United States supplied thousands of vehicles and millions of other weapons to the Allies. From 1941 until 1945 the industrial output of the Ford Motor Company, which had converted entirely to wartime production by 1942, outstripped the total production of all Italian industry. In the same period, the General Motors Corporation out-produced Japan. American industry by 1945 had built more than 88,000 tanks, 2,300,000 military trucks, and 2,500,000 machine guns.

After World War II, American weapons designs continued to emphasize mass production capability. It was reasoned that a future conflict with the Soviet Union, seen as a likely possibility after 1945, would most likely occur in Central Europe. Given the massive size of the Soviet military, American planners assumed that a massive amount of equipment would be necessary. The development of atomic weapons in the United States initially served to counter the numerical disparity in ground forces, but a corresponding Soviet production of nuclear weapons eliminated the possibility of relying solely upon atomic weapons. In the immediate postwar

period, neither side of the Cold War truly had the capability to strike the enemy heartland, despite the increasing lethality of nuclear payloads. Likewise, each side sought to improve upon German ballistic missile designs, which had demonstrated limited reliability and accuracy during the war. When Soviet rocket scientists successfully launched *Sputnik,* the first manmade satellite, into orbit on October 4, 1957, the implication was that they could then target locations in America with ballistic missiles. While somewhat true, the rocket that launched *Sputnik* did not have nearly the launch capacity necessary to deliver an atomic weapon. Given that neither side owned an intercontinental bomber aircraft capable of reaching targets in the enemy's heartland, land weapons remained an integral part of the Cold War arsenal of each nation.

The Korean War demonstrated to American military leaders that atomic weapons could not counter every threat. Unfortunately, it also demonstrated the inferiority of many American land weapons, and that airpower could not be relied upon to provide victory in every circumstance. The first American troops deployed to help defend South Korea arrived with almost no capability of slowing, much less halting, North Korean armored units. Antitank rockets bounced off of the Soviet-supplied tanks, and members of Task Force Smith reported a massive shortage of artillery and heavy infantry weapons. The American overreliance upon airpower nearly doomed the war effort. Despite nearly uncontested air superiority over the combat theater, American and allied troops still faced a difficult, bloody land war to push back the enemy across the 38th parallel. The situation became infinitely worse in October 1950 when hundreds of thousands of Chinese infantry soldiers entered the conflict. To counter the United Nations' aerial superiority, the Chinese troops moved at night and engaged their enemy at extremely close range. This not only pushed UN forces back into South Korea, it also demonstrated once and for all that airpower could not single-handedly win a war without well-equipped land forces. Because the United States did not formally declare war in Korea, wartime industrial mobilization plans such as the ones used in World War II did not go into effect. American munitions production lagged behind consumption, and only the enormous stockpiles left from the previous war prevented widespread shortages at the front.

After the Korean War the American military refused to learn the key lesson regarding the role of land forces in modern war. American politicians remained enthralled by the potential of airpower to fight quick, relatively cheap and bloodless wars through surgical strikes or massive bombing campaigns. Despite the ample evidence that aerial campaigns could not win wars, particularly against less industrialized foes, land weapons development received far less attention and fewer resources than airpower and seapower procurements. American land weapons continued to lag behind their Soviet counterparts in both quantity and quality of production. In contrast, American air assets continually outstripped Soviet designs in range, armament, and versatility. In the 1950s the U.S. Air Force also assumed control of ballistic missile development, reducing Army responsibilities and resources.

This essentially removed the Army from control over any significant portion of the growing nuclear stockpile, the cornerstone of American defense policy for most of the Cold War.

In the 1960s the major combat commitment of the U.S. Army occurred in South Vietnam, in the first counterinsurgency role for American troops since the pacification of the Philippine Islands six decades earlier. As troop deployment numbers steadily increased, it became readily apparent that the Army did not possess sufficient land weapons, in quantity or quality, to win the war in Southeast Asia. Civilian political leaders hoped that airpower could be the decisive element to bring victory in Vietnam, but this hope proved futile. By 1968 over 500,000 American soldiers were serving in Vietnam, attempting to eliminate an elusive enemy through patrols, ambushes, and deep helicopter-borne assaults. With enemy body counts as the primary measure of mission success, land weapons effectiveness was obviously a key component in a possible victory.

The first basic combat firearm of American troops in Vietnam, the M-14 carbine, proved ineffective in the jungle terrain and short but intense combat operations. It had been designed for use in Europe, where infantry were expected to engage at long ranges and without much camouflage. In the jungles of Vietnam, where combat range was often measured in meters instead of miles, a high volume of fire proved far more important than accuracy. To replace the M-14, the Army chose to modify an AR-15 semiautomatic rifle, creating the ubiquitous M-16 carbine. The resulting weapon combined a high rate of fire and extreme accuracy into a lightweight, easily-operated weapon. The M-16 was not flawless; its first use in the field demonstrated a lack of stopping power due to the small size of the round fired. Also, the tight rifling in the barrel, designed to increase accuracy, actually provided the bullet with too much penetrating power—rounds simply punched completely through enemy bodies without causing substantial wounds. To address the problem, engineers perceived two choices. One was to increase the size of the round, which would make the weapon heavier, reduce the number of rounds that could be carried by each soldier, and require a complete redesign of the weapon. The other choice was simply to reduce the rifling, lowering the accuracy of the weapon but also producing a loose spin, essentially inducing the bullet to tumble through the air. The tumbling effect of the bullet caused devastating wounds—when rounds struck a body, the bullet often fragmented, creating multiple internal injuries.

In Vietnam the chief problem for the Army remained locating and identifying the enemy rather than winning combat engagements. As the American involvement deepened, artillery positions were established throughout the nation, ensuring that American units in radio communication were never outside of heavy weapons support. The artillery units could place more ordnance on target, with greater accuracy than available airpower assets, and could do so in a much quicker period of time. Despite the availability of extreme firepower, however, American strategists increasingly saw the war as a losing proposition. Most Army innovations were doctrinal rather than technological in nature, aimed at winning over the "hearts and minds" of

the enemy. Although American military strategy continued to focus upon the Soviet threat in Europe, operations in Vietnam consumed increasing amounts of resources, particularly in personnel costs. In the same period, the Soviet Union created a series of land weapons, including the BMP armored personnel carrier, the T-72 tank, and the AK-74 assault rifle, all considered superior to corresponding American hardware when fielded in the 1973 Arab-Israeli War. With American combat forces exhausted and withdrawn from Vietnam, the U.S. Army faced a technological crisis, compounded by a massively reduced budget and the need to transition to an all-volunteer force.

General Creighton Abrams, chief of staff of the U.S. Army, identified a need for new weapons systems to counter the latest Soviet innovations. Quickly dubbed the "Big Five," Abrams called for a new main battle tank (the M1A1 Abrams), an air defense missile (the MIM-104 Patriot), an armored personnel carrier (the M2 Bradley), a combat helicopter primarily for antitank use (the AH-64 Apache), and a transport/utility helicopter (the UH-60 Blackhawk). These systems, which incorporated the newest computerized electronics, could counter anything fielded by enemy forces and substitute a technological edge for a deficiency in deployed manpower.

The decision to pursue sophisticated military hardware came at a significant cost. The price of individual weapons systems far exceeded anything previously spent by the United States for military technology, and the production of such weapons required extremely specialized assembly line technology. The conversion of civilian factories to wartime production, as practiced during World War II, has become a virtual impossibility due to the complexity of the systems being produced, as well as the classified nature of the weapons technology involved. The need for a dedicated production system, and the long time involved in the development and procurement of modern land weapons, has given rise to an entirely new class of defense companies whose sole economic survival is dependent upon the continued business of the federal government. However, because the weapons systems cannot be easily produced in other locations, the government is almost entirely dependent upon the new defense corporations for military hardware, and is committed to large, long-term production contracts to build and maintain the American defense forces of the 21st century. American planners remain enamored with the possibilities of airpower, but continuing wars in Afghanistan and Iraq have demonstrated the need for land weapons capable of countering the threats of a well-armed nonstate military force engaged in an insurgency.

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See also: Arms Manufacturers/Defense Industry Contractors; Cold War; Defense Industry Lobbyists; Global War on Terrorism; Korean War; Research and Development/Think Tanks/University Research; Roosevelt, Franklin Delano; Soviet Union (USSR); Strategic Defense Initiative (SDI); United States Air Force; United States Army; Vietnam War; Weapons, Air; Weapons, Nuclear; World War II

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WEAPONS OF MASS DESTRUCTION (WMDs)

WMDs refer to biological, chemical, and nuclear weapons capable of inflicting mass casualties. Use of these weapons is viewed as not only immoral but contrary to international law and the laws of war because WMDs have the ability to kill indiscriminately, meaning that their destructive nature is not limited to just combatants or military assets. During the Cold War, fears about nuclear weapons and their use was commonplace. Nevertheless, these weapons were under tight control, and neither side dared employ them for fear of the total destruction that a retaliatory strike would bring. With the end of the Cold War, however, nuclear proliferation has become a significant problem, and the likelihood of a rogue state or terrorist group attaining WMDs, including a nuclear weapons, has increased substantially.

During the Iraq-Iran War (1980–1988), Iraq employed chemical weapons on



Undated picture shows 500-pound aerial bombs filled with chemical warfare agents awaiting destruction by UNSCOM inspectors in charge of disarming Iraq during the mid-1990s. (AFP/Getty Images)

Iranian troops, something Iraqi dictator Saddam Hussein publicly admitted to in December 2006 during his trial for war crimes. It remains in disputed whether Iran employed them as well. The Iraq-Iran War was also the first conflict since World War I in which chemical weapons, apart from tear gas, had been employed. In 1988, as part of an operation to suppress a revolt by Iraqi Kurds, the Hussein government unleashed a chemical attack on the northern Iraqi town of Halabja, killing at least 5,000 people in the first recorded event of such weapons used against civilians. The terrorist bombings in Japan in 1994 and 1995 in which chemical weapons were released in a Tokyo neighborhood and subway reminded the world of the destructive capability of WMDs.

Since the terror attacks of September 11, 2001, the fear of and danger posed by WMDs has increased significantly, owing to the desire of terrorist groups such as al-Qaeda and their affiliates to acquire and employ such weapons against the United States and other countries. The September 11 terrorist attacks on the United States and the 2004 Madrid and 2005 London bombings clearly demonstrated the ability and willingness of al-Qaeda to engage in terrorism to inflict mass casualties, leaving no doubt about their willingness to use WMDs in future terrorist attacks. In March and April 2006 in Iraq, al-Qaeda is believed to have been responsible for a series of terrorist chemical attacks using chlorine gas that killed dozens and sickened hundreds.

Because of the instability and recurrence of war and conflict in the Middle East, the presence of WMDs has only heightened the arms race between Arab states and Israel and also among Arab states themselves. Egypt, Syria, Algeria, and Iran are believed to have significant stockpiles of biological and chemical weapons. In 2003 seeking to normalize relationship with the United States and Europe and end its international isolation and reputation as a sponsor of terrorism, Libya announced that it was abandoning its WMD programs. Observers have suggested that President George W. Bush's decision to invade Iraq in 2003 and Libya's failure to end its isolation and convince the United Nations (UN) to lift its sanctions prompted this change of behavior.

Syria is believed to possess extensive chemical weapons stockpiles and delivery systems and has also been seeking to develop a similarly robust biological weapons program. Egypt was the first country in the Middle East to develop chemical weapons, which may have been prompted at least in part by Israel's construction of a nuclear reactor in 1958. The size of Egypt's chemical weapons arsenal is thought to be perhaps as extensive as Iraq's prior to the 1991 Persian Gulf War, although the end of hostilities between Egypt and Israel since the 1978 Camp David Accords may have obviated the need for maintaining the same quantities of such weapons.

In 1993 as part of the Arab campaign against Israel's nuclear weapons program, Egypt and Syria (along with Iraq) refused to sign the Chemical Weapons Convention (CWC), which bans the acquisition, development, stockpiling, transfer, retention, and use of chemical weapons. These states also refused to sign the Biological Weapons Convention (BWC) of 1975, which prohibits the

development, production, acquisition, transfer, retention, stockpiling, and use of biological and toxin weapons. Iraq later signed the BWC. The extent of Egypt's biological weapons program is unknown, but it clearly has the ability to develop such weapons if it already does not have weaponized stockpiles.

With respect to nuclear weapons, Israel is believed to possess as many as 100 nuclear warheads, although the Israeli government has never overtly confirmed possessing such weapons. On December 12, 2006, Israeli Prime Minister Ehud Olmert admitted in an interview that Israel possessed nuclear weapons, only to be contradicted by a government spokesman the next day denying that Olmert had made such an admission. In the meantime Israel has refused to sign the Nuclear Non-Proliferation Treaty (NPT) and has not allowed UN International Atomic Energy Agency (IAEA) inspectors to inspect its suspected nuclear sites.

Israel has repeatedly shown its willingness to use force to maintain its suspected nuclear monopoly and deny any Arab state the ability to acquire or develop nuclear weapons. In 1981 the Israeli air force destroyed an Iraqi nuclear reactor site under construction at Osirak, Iraq. Iran is currently enriching uranium for what it claims are peaceful purposes, but the United States and much of Western Europe have accused Iran of aspiring to build nuclear weapons. That state's refusal to cooperate with the IAEA has led the United Nations in December 2006 and March 2007 to impose sanctions on Iran as punishment for its defiance of the UN.

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See also: Bush, George Walker; Cold War; Israel; Weapons, Nuclear; World War I; World War II

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WEAPONS, NUCLEAR

One of the key weapons systems identified as a "Weapon of Mass Destruction" (WMD), nuclear weapons remain limited because of the enormous scientific, economic, and resource base needed to develop and acquire them. Further, their real capabilities as well as psychological impact have contributed to the realities and perceptions of the horrors of nuclear weapons. Thus, nuclear weapons are one specific group that have been carefully managed and watched over the course of their history; presently, due to international agreements and limiting the technology, only nine of the world's countries are armed with nuclear weapons.

Nuclear weapons were first developed in the 1940s, with experimentation and the theoretical underpinnings from earlier physics and chemistry. Albert



The USS *George Washington,* the first nuclear powered submarine designed to launch Polaris ballistic missiles while submerged, takes to the water at Groton, Connecticut, in June 1959. *George Washington* was built quickly by cutting an attack submarine in half and adding a missile compartment. (United States Naval Institute)

Einstein was an early physicist who predicted and warned of the potential of nuclear weapons. When World War II broke out in Europe in 1939, Allied scientists (specifically British and American) were concerned that the Germans may have been developing their own nuclear weapons; U.S. President Roosevelt ordered the Manhattan Project. Based at Los Alamos, New Mexico (with supplies coming from Oak Ridge, Tennessee, and other places), the combined U.S. and British team developed the first three Allied atom bombs during the war. Tested in New Mexico, two atomic bombs were later dropped on Japan, which helped end World War II in the Pacific.

After the war a contest emerged between the USSR and the west, a nuclear arms race. Each side developed, tested, and deployed increasingly advanced nuclear weapons and delivery systems. The strategic motivation behind the arms race was each nation's drive to ensure that its adversary not gain any measurable advantage in nuclear-strike capability. Also at play was the evolving concept of nuclear deterrence, which held that a nation must retain adequate nuclear capabilities to deter the enemy from launching a preemptive nuclear attack. This concept became known as Mutual Assured Destruction (MAD) and held that any preemptive attack would result in an

overwhelming and catastrophic retaliatory strike. Thus, the Soviets pursued their own atomic bomb with great vigor. Soviet spies who had infiltrated the Manhattan Project and a skilled scientific community allowed the Soviet Union to detonate its first nuclear weapon in September 1949.

The United States sought to retain its nuclear lead and, in an action-reaction cycle that would typify the arms race, pursued the next nuclear development—in this case, a thermonuclear (or hydrogen) bomb. America's success in developing the hydrogen bomb in 1952 was followed by Soviet success in 1955. The nuclear arms race now entered its most recognizable form wherein the superpowers pursued weapons that were smaller in size, more powerful, and increasingly accurate. In the same vein, delivery systems became faster, more accurate, and more difficult to locate.

During the late 1940s and early 1950s, the primary delivery vehicle for nuclear weapons was strategic bombers. More advanced aircraft were needed to carry more than one nuclear weapon, and indeed nuclear weapons needed to be smaller so that they could be carried by a variety of aircraft. The American B-29 was matched by the Soviet TU-4, but neither proved sufficient. Developments led ultimately to the B-52 and the TU-20, both intercontinental bombers capable of delivering large payloads to multiple targets.

The next step in the nuclear arms race was missile development. Advances in rocketry led to the development of ballistic missiles in both the United States and the Soviet Union. The first U.S. intercontinental ballistic missile (ICBM), the Atlas D, was deployed on October 31, 1959. The Soviets followed suit with their own ICBM, the SS-6 Sapwood (North Atlantic Treaty Organization [NATO] designation), on January 20, 1960. ICBMs were a step up from their cousins, medium-range ballistic missiles (MRBMs) and intermediate-range ballistic missiles (IRBMs), and became the most popular delivery system because of their range and relative invulnerability to enemy air defenses. ICBMs had a maximum range of 10,000 miles and could be stationed on the other side of the world from their targets.

In the 1950s both superpowers came to rely on nuclear weapons as the primary weapon for any major Cold War engagement. The nuclear arms race created ever-larger arsenals and increasingly effective weapons and delivery systems. As a result both sides became vulnerable to an enemy attack. It was this vulnerability that perpetuated the arms race during the decade and beyond. Neither side was willing to give up its weapons, and the newer weapons now meant that the nation that launched a first strike might be able to avoid a retaliatory strike if its nuclear advantage were enough to allow it to destroy most of the enemy's nuclear forces in the first blow. Any large gap in nuclear arms made one nation vulnerable, and nuclear balance could only be ensured by nuclear parity. As a result scientific advances by one nation had to be matched by the other, or else a gap would result and one side would gain advantage.

This situation was aggravated in the 1960s with the evolution of the counterforce (or no cities) doctrine. Advocates of the doctrine suggested a general agreement between the superpowers to use nuclear weapons only against mili-

tary installations, sparing population centers. Adopting this policy meant accepting the reality that in order to sustain the ability to launch an effective counterstrike, a nation must deploy enough weapons to ensure that the enemy could not destroy them all in a preemptive strike. Thus, more and better weapons were needed.

The alleged existence first of a bomber gap, then a missile gap, later an antiballistic missile gap, and later still a missile throw-weight gap kept arms manufacturers in perpetual development. In the United States the Military-Industrial Complex also contributed to the arms race as defense industries fought for lucrative military contracts by driving forward to the next level of weaponry and delivery systems. In November 1960 the United States deployed the world's first nuclear-powered ballistic missile submarine (SSBN), the *USS George Washington,* capable of launching 16 Polaris missiles. The Soviets followed in 1968 with their own SSBN. These weapons increased the danger of the arms race and were potentially even more deadly than ICBMs, as they were capable of avoiding retaliatory strikes because of their ability to hide deep beneath the ocean.

Changes in computer technology also advanced the nuclear arms race. Advances were made on both sides in ICBMs, bombers, and submarines, but the United States maintained strategic superiority. In the late 1960s and into the 1970s, however, the Soviet Union took the lead in ICBM production and in the development of antiballistic missile (ABM) technology. Soviet ABMs were designed primarily to protect major cities, such as Moscow, and were less effective against a full attack against Soviet military installations. Multiple independently targeted reentry vehicles (MIRVs) complicated matters. MIRVs meant that each ICBM could deploy a dozen or more warheads, each programmed for a separate target. MIRVs promised to overcome any ABM system.

At the same time, the United States continued development of tactical nuclear weapons. Small, low-yield nuclear warheads were designed to be used against targets within a theater of war and in support of military operations by field forces, in contrast to strategic nuclear weapons designed for planned use against targets in the adversary's homeland. Tactical nuclear weapons provided additional options for military commanders in accomplishing their assigned missions. The U.S. military's development of tactical nuclear weapons was stimulated by the practical challenge of countering the large Soviet military that was retained after World War II. Concern over fighting against numerically superior forces was amplified by the experience of engaging Chinese "volunteer" forces during the Korean War (1950–1953). The technological advance of firepower provided by nuclear weapons offered a solution to the threat that would also be more cost-effective than building large conventional forces. President Dwight Eisenhower's administration quickly formalized a commitment to nuclear weapons as the foundation of national security planning in the New Look defense posture, which emphasized both strategic and tactical nuclear weapons. The strategic and theater components of the U.S. Air Force were optimized for nuclear delivery, and even the U.S. Army developed a new organizational structure (known as the Pentomic

Division) designed for the more fluid environment of theater nuclear operations. The U.S. Navy also developed extensive nuclear capabilities for battles at sea and for strikes against shore targets. In 1957 the North Atlantic Treaty Organization (NATO) adopted the U.S. style of doctrine and force structure, making nuclear firepower the key element of its ability to deter and potentially defeat aggression by the numerically superior Soviet Army. The Soviet military responded to the NATO move by expanding its own theater nuclear forces.

Arms control talks and treaties during the 1970s and arms reduction agreements during the 1980s slowed but did not stop the nuclear arms race. When the Cold War ended, so did the nuclear arms race in its original form. Because nuclear weapons remain a strategic force for some nations, a new and different nuclear arms race seems likely to develop. Nonproliferation treaties (NPT) are enforced to this day to prevent additional countries from developing nuclear capabilities; the NPT is specifically targeted at countries that may support international terrorists with WMD.

Nuclear Weapons provide an excellent example of the Military-Industrial Complex in action. Because of their cost and the enormous human capital involved, they represent an archetype of the relationship between the military and industry. Although there have been non-military uses for nuclear technology, nuclear weapons are designed for military use specifically, and have had an incredible influence on military budgets, national strategy, and international diplomacy since their inception in 1945.

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See also: Bomber Gap; Eisenhower, Dwight David; Korean War; Los Alamos, New Mexico; Manhattan Project; Massive Retaliation; Missile Gap; Mutual Assured Destruction (MAD); New Look Defense Policy; North Atlantic Treaty Organization (NATO); Oak Ridge, Tennessee; Roosevelt, Franklin Delano; Soviet Union (USSR); Truman, Harry S.; World War II

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WEAPONS, SEA

A naval power almost since its inception, the United States has a long history of

global naval operations and a highly developed naval industry that includes naval weapons. American naval weapons, particularly its gunnery, have been among the world's best for over a century. The United States Navy was the first to develop a dual-purpose gun that was equally adept at engaging air as well as surface targets. Unlike the U.S. Army, the USN entered World War I self-sufficient in armaments and did not require France or Great Britain to provide it with weapons and other equipment in that war. However, conservative naval leadership limited investment in new systems immediately after that war but the signing of naval armaments treaties of the 1920s placed limitations on ships' displacement that drove the navy to seek ways to maximize fleet firepower within those restrictions. It was that drive to innovate that led the navy to develop the weapons systems and approach to development that gave it a technological lead that lasted into the 1960s.

The introduction of torpedo carrying combatants before that war forced the world's major sea powers to install rapid firing secondary armament on their major warships to deal with that threat. The development of torpedo-carrying aircraft in World War I expanded the threat, forcing navies to add antiaircraft artillery (AAA) to their warships' weapons load. Accommodating the additional armament and ammunition brought with it an expanded manning and electrical power requirement that competed with the main armament and propulsion for space and weight on the ship. Additionally, AAA by necessity had to be installed above the



A Terrier surface-to-air missile streaks skyward after being launched from the experimental auxiliary ship *Mississippi* during at-sea tests ca. 1954. The Navy devoted much attention to the development of guided missiles in the years following World War II. (Naval Historical Center)

weather deck, raising the ship's center of gravity and therefore affecting its stability and seaworthiness to an extent beyond the weapons' weight. The naval limitation treaties exacerbated these challenges by placing displacement limits on any new construction, which precluded designers from expanding the ship's hull and displacement. Thus, most European battleship and battle-cruiser designs incorporated separate anti-surface and antiaircraft batteries in their secondary armament. Their cruisers typically eschewed significant AAA batteries. American designers pursued a different path.

The USN emerged from World War I with the standard range of battleship main battery weapons ranging from 12 to 16 inches. Secondary armament consisted of 5-inch/50 caliber weapons backed up by smaller 3-inch cannon and light machine guns for close-in action. Heavy and light cruisers had main batteries of 8- and 6-inch guns, respectively, with secondary batteries of 4-inch/50s, the same weapon carried by American destroyers. All USN warships carried light machine guns for close-in anti-torpedo boat protection, which also proved useful for antiaircraft protection against early seaplanes and other air threats. However, increasing aircraft speeds, improved armament, and stronger air frames rendered those weapons obsolete by the late 1920s. U.S. naval leaders recognized the need for longer-ranged, more powerful antiaircraft weapons to meet those threats but the added weight came at the expense of their warships' primary weapons systems. The capital ship's defensive weaponry threatened to reduce offensive striking power. That led the navy to order development of a cannon capable of engaging both air and surface targets. In the interim the navy modified the 5-inch/25 submarine cannon for high angle work to serve as a long-range antiaircraft weapon on its battleships and heavy cruisers until something better was developed.

The resulting 5"/38 entered service in 1934. Employing an electro-hydraulic loading system to accelerate the loading of its semi-fixed ammunition, the 5"/38 Mark 12 gun fired a 54lb shell out to a maximum effective range of 18,200 yards and ceiling of over 45,000 feet. A well trained crew could fire up to 15 rounds a minute for short periods of time and 8 to 12 rounds per minute of sustained firing. First introduced aboard Clemson-class destroyers in single mounts, it became the standard secondary weapon aboard all USN cruisers and battleships built after 1937. Versatile, accurate, and comparatively cheap, it became the most widely deployed naval weapon of the modern era, serving the USN into the 20th century's final decade. More importantly, it pointed the way to future USN gunnery developments.

Air power's dominance in Pacific Ocean naval operations drove the navy to develop faster-firing longer-ranged guns to deal with the Japanese air threat. By war's end, the USN had a vast array of fully automatic cannon in development, ranging in size from 3 to 8 inches in bore. The first to enter service was the Mark 16 fully automatic 6"/47 installed on the Cleveland-class light cruisers beginning in 1943. Capable of firing up to 20 100lb shells per minute out to 25,000 yards, the Mark 16 almost tripled the light cruiser's fire-

power. The navy decided to try it as a dual-purpose cannon, putting it in a reinforced twin turret and increasing the firing rate to 30 rounds per minute. The resulting gun mount was installed on the *USS Worcester*-class light cruisers after the war. It was followed by the 3"/50 which entered service in 1946 and had a rate of fire approaching 60 rounds per minute. The navy then brought the Mark 42 5"/54 and Mark 16 8" gun into service in 1947, firing 40 and 20 rounds per minute, respectively. The eight-inch gun also fired a larger round than its foreign counterparts (325 versus 200lbs) but neither it nor the automatic 6-inch cannon could be accommodated on a 10,000 ton hull. The recoil forces were too high. Weight and maintenance considerations forced the retirement of the cruisers that carried the postwar automatic cannon. By 1975 only the 5"/54 and its platforms remained in service. Its latest derivatives, the Mark 45 remains in service to this day.

The 1950s saw a massive research effort into air defense systems, particularly surface-to-air missiles (SAMs) and related systems. The USN developed the T-series of radar-guided SAMs by that decade's end. All used a solid-fuel rocket engine for initial launch and then employed a "sustainer" engine for the flight to the target. The most powerful was the *Talos,* heavy 6-ton missile that could be carried only aboard cruisers; the United States modified several cruisers to carry that 80+ nm range missile. It used a ramjet engine for sustained flight and employed semi-active homing radar guidance. It is most famous for successfully downing two Vietnamese MiGs at a range of over 70nm during the Vietnam War. The smaller 20nm range *Terrier* entered service about the same time. It and the much smaller 10nm range *Tartar* missile were "beam riders." That is, they flew within the fire control radar's guidance beam to the target. These early SAMs served the Navy into the 1970s when solid-state circuitry and improved radar technologies led to their replacement by the "Standard" missile system, which used semi-active radar homing with in-flight guidance to improve range, accuracy, and lethality. By 2001, the USN's most modern guided missile cruisers and destroyers had the capacity to intercept ballistic missiles as well as supersonic aircraft.

Antisubmarine warfare (ASW) also affected naval weapons requirements. The depth charge was the first ASW weapon introduced into service. However, Germany's U-boat campaign of World War II drove the United States to develop a range of ASW weapons systems from the Hedgehog, a system that fired 24 rockets in a circular pattern 250 yards forward of the ship to the Mark 18 antisubmarine "mine" that was actually a torpedo that conducted a circular search pattern to locate a submarine and then attack it. By the 1950s the United States was producing a range of air, surface, and submarine launched ASW torpedoes, from the Mark 24 to the Mark 46. In each case the higher mark meant an increase in speed, improved sensor and search capability, and in the later variants a more powerful warhead and lethality. Prior to World War II all USN torpedoes were intended for use against surface ships.

The Mark 14 steam-driven torpedo constituted the most widely used torpedo of that war's early years. The later Mark

16 electric torpedo was slower (30 knots versus 45) and was expected to be more effective because of its magnetic exploder which was supposed to enable it to break the target's keel by exploding beneath it. However, the unreliable depth mechanism and flaws in the warhead design made it one of the most unreliable torpedoes every developed. Its problems weren't solved until late 1943. Capture of German sonar-guided torpedoes facilitated U.S. torpedo designs during the postwar period. The Mark 32 torpedo employed both passive and active sonar to track and engage its targets. It could be employed against both surface and subsurface targets. However, its lack of warhead punch led to the development of the Mark 48 torpedo, which has over twice the range and speed and can be guided by the weapons operator aboard the submarine if required. Probably the most devastating antiship weapon in service, it uses a proximity fuze to detonate the torpedo under the ship's hull. Test firings show few ships remain afloat for more than a few minutes after being "hit" by the Mark 48. It is one of two USN torpedoes still in service and is employed exclusively aboard submarines.

Although the navy has not focused a lot of attention on mine countermeasures, it had an extensive inventory of naval mines and employed them extensively against Japan in World War II and planned to do so against the Soviet submarine threat had the Cold War gone "hot." USN mines of World War I were simple moored contact mines designed to be transported and laid by surface ships. That is, the mines were "moored" to a casing anchored on the bottom and floated at a set depth below the surface, in contrast to "bottom mines" that rested on the bottom. Specially designed minelayers and submarines, such as the *USS Argonaut* (SM-1), could carry up to 400 and 60 of each mine, respectively. Also, some destroyers were modified to carry up to 40 mines for special contingencies. However, submarines and aircraft became the dominant deployment platforms during World War II and have remained so in American service ever since. In fact Air Force B-29s laid over 70 percent of the mines planted by U.S. forces in World War II, all but choking off Japanese maritime commerce in their home waters. The nature of America's mine inventory also changed in World War II, with bottom "influence" mines supplanting the Mark 6, 10, 11, and 16 moored mines. That is, the mines were detonated by the target ship's influence on the ocean environment.

The Mark 12 magnetic mine was the first to enter service. Introduced in 1937 it could be deployed by aircraft, submarines, or surface ships. The Mark 27, which could be launched through a submarine's torpedo tube, followed three years later. Later modifications added ship counters—which could be set to allow a certain number of ships to pass over before detonating—a tactic to defeat mine countermeasures that simulated a passing ship. Also, the post-1942 Mark 25 and 26 mines did not require parachutes when air dropped. Later the USN added "kits" that converted conventional bombs into improvised mines, enabling carrier-based aircraft to become minelayers. By war's end the USN had a wide variety of mines that could be detonated by a ship's magnetic or acoustic signature, the pressure wave it produced as it moved through the water, or a combination thereof. Mine

development languished immediately after the war, but the Soviet Union's massive submarine construction program of the 1950's reinvigorated American interest in naval mines.

By the late 1960's the navy introduced the *Captor* ASW Mine, a type of bottom influence mine directed at engaging submarines in deep water. The *Captor* used a sensitive acoustic sensor and computer processor to detect and identify submerged Soviet submarines and launched a MK 46 ASW torpedo against the target once it was in range. The *Captor*'s advantage was that it posed no threat to surface ships and therefore could be laid in shipping lanes and naval operating areas. The *Captor* could be laid by aircraft, submarines, or surface ships. The same principle has been applied to the navy's MK 67 submarine-launched mobile mine that entered service in 1987. Launched from a submarine submerged in deep water, the MK 67 is a mobile mine that travels to the target area on its own power and then rests on the bottom in shallow water to attack enemy shipping. Once a target is detected, it launches an MK 37 acoustic-guided torpedo, which then attacks the ship. It was intended for covert deployment off enemy harbors. Other U.S. antishipping mines include the air-dropped MK 62, 63, and 65 *Quickstrike* bottom influence mines that essentially consist of an acoustic/seismic/pressure detonator system attached to MK 82 (500lb), MK 83 (1000lb), and MK 84 (2,000lb) bombs. Earlier versions of the MK 62 were employed against North Vietnam's Haiphong Harbor during the Vietnam War.

The Egyptian navy's 1967 sinking of the Israeli destroyer *Eilat* with a Soviet-built *Styx* antiship cruise missile reinvigorated USN interest in surface-to-surface guided missiles. Initially examined and rejected in the 1950s as superfluous for a navy with aircraft carriers, the *Eilat*'s loss demonstrated that antiship cruise missiles gave maritime striking power to any ship. The USN immediately ordered development of a similar capability for its ships. The resulting program led to the development of the *Harpoon* and *Tomahawk* series of ASCMs that entered service in the late 1970s. The radar-guided 64nm range RGM-84 *Harpoon* also comes in air-launched (AGM-84) and submarine (UGM-84) versions. Its 467lb warhead has made it a devastating weapon against the unarmored warships of today. The 300nm range *Tomahawk* ASCM is not as widely deployed and largely has given way to the RGM and UGM land attack cruise missiles; a mission for which it has seen extensive employment since 1991.

As a maritime power the United States continues to maintain a vast industrial network to support its navy with the latest in maritime propulsion, sensor, and weapons technology. That capability and investment has given the USN almost unchallenged naval supremacy on the world's oceans, particularly in the post-Cold War era. However, unlike its aviation industry, America's maritime industrial complex enjoys little commercial activity and therefore relies almost entirely on the government to fund its research and development efforts. That suggests America's naval supremacy will decline in consonance with its economic strength as the 21st century advances.

CAPT Carl Otis Schuster, USN (Ret)

See also: Vietnam War; Weapons, Air; World War I; World War II

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WEAPONS, SPACE

Immortalized by Hollywood classics such as the James Bond *Moonraker* and humorous *Austin Powers* portrayal of a threatening moon base, space-based weapons still stir excitement and trepidation in the American psyche and media. A lingering concern over enemy space platforms continues to be a central focus of movies, literature, and news media.

Initial fear over threats from space emerged during World War II when Germany began their intercontinental ballistic missile (ICBM) program in the form of the V-2 rockets. These rockets rained destruction on London and Antwerp in the waning days of the war, initiating a new form of warfare: the long-range standoff capabilities of missiles and rockets. With the addition of nuclear warfare—in the form of the American atom bombs in August 1945—the perceived threat grew.

Into the Cold War, an enormous effort was put forward in the United States to building missile technology and refining nuclear weapon development. The perception of supremacy was shattered in 1954 when the Soviets launched *Sputnik*, the first man-made satellite. The race for space was on. The concern was that the Soviets would be able to develop space platforms to threaten U.S. interests at home and abroad by weaponizing space. American space programs, including National Aeronautics and Space Administration (NASA) funding, were designed to counter the Soviet threat.

Throughout the Cold War, American industry in cooperation with the U.S. Air Force were charged with development and procurement of missile technology, weapons technology, and space platforms to equal Soviet space capabilities. The "Missile Gap" that emerged was the argument that the Soviets had qualitative and quantitative advantages in ICBM technology. It was later agreed that the United States led in most systems; but a significant Soviet threat remained.

By 1983 President Reagan initiated a program to counter the Soviet nuclear missile threat, combining enormous resources in the Military-Industrial Complex, embarking on a lasting high-cost government program to provide a defensive space platform. The Strategic Defense Initiative (SDI, better known as Star Wars) was a break from previous policy of Mutual Assured Destruction (MAD), and an effort to defend against Soviet missiles rather than rely on the offensive capabilities of the vast American nuclear ICBM

arsenal. The premise was that SDI would make the United States invulnerable from Soviet missile attack, thus making their entire arsenal redundant. The Soviets expressed concern over SDI in that if it worked it would allow the United States to strike the Soviets without fear of reprisal. Through the end of the Cold War, the Soviets constantly lobbied against American SDI, claiming strategic vulnerability. Even with the collapse of the Soviet Union and the end of the Cold War, the United States continues to fund the SDI program. Although it is a mixed bag of success and failure and is not yet fully functional, it remains a cornerstone of space defensive capabilities.

Offensive space weapons continue to be developed by the United States. From the airborne laser system (on aircraft), intended to counter missiles and target satellites, to efforts to produce satellite laser systems for countering missiles as well as space-based targeting. Other systems may include space platforms for the further weaponization of space.

Passive systems have become more prevalent. Satellite communications systems provide both civilian and military applications from communications to Global Positioning, both initially military programs that have evolved into civilian uses. Satellite television, radio, and internet are offshoots of these (initially military) technologies.

The U.S. military in combination with American industry continues to explore space-based options for future use. A lasting consideration is "lift cost" of putting material into space and ongoing constraints of existing rocket technology. In the 21st century, the United States, while continuing efforts toward military applications in space, has shifted focus to further space exploration, the International Space Station, and a possible return to the moon.

S. Mike Pavelec

See also: Missile Gap; Mutual Assured Destruction (MAD); National Aeronautics and Space Administration (NASA); Reagan, Ronald Wilson; Soviet Union (USSR); Space Race; Strategic Defense Initiative (SDI); United States Air Force; Weapons, Nuclear; World War II

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WEINBERGER, CASPAR (1917–2006)

U.S. politician and secretary of defense (1981–1987). Born in San Francisco, California, on August 18, 1917, Caspar Willard Weinberger attended Harvard University, where he earned an AB degree in 1938 and a law degree in 1941. He served in the army during World War II, reaching the rank of captain. Following his discharge he clerked for a federal judge and entered politics, winning election to the California State Assembly in 1952 and later serving as chairman of the California Republican Party.

After working in California Governor Ronald Reagan's cabinet in the late 1960s and early 1970s, Weinberger moved on to Washington, where he was director of the

Federal Trade Commission (FTC) in 1970, deputy director during 1970 to 1972, and director during 1972 to 1973 of the Office of Management and Budget (OMB), and secretary of Health, Education, and Welfare (HEW) during 1973 to 1975.

Weinberger served as an advisor to Reagan during the 1980 presidential campaign, and Reagan subsequently appointed him as secretary of defense in 1981. When Reagan nominated Weinberger, many conservative Republicans feared that given his reputation as a budget cutter, Weinberger would not support Reagan's calls for increased military spending. As director of the OMB, Weinberger had earned the nickname "Cap the Knife," and Jesse Helms, a right-wing Republican senator from North Carolina, voted against his confirmation based on those fears. However, Weinberger soon developed a reputation as one of the strongest proponents of Reagan's defense buildup.

Reagan and Weinberger identified several major goals, including nuclear arms reduction. But during Reagan's first term as president, his administration embarked upon a major buildup of nuclear weapons. Weinberger also pushed to deploy more nuclear warheads in Europe and supported Reagan's Strategic Defense Initiative (SDI) for the establishment of a laser-guided defense system in outer space to destroy incoming ballistic missiles aimed at the United States. These and other measures were controversial and costly, but Reagan and Weinberger defended them as necessary to meet the Soviet threat. Weinberger resigned his post in November 1987, citing his wife's poor health.

In November 1992 a grand jury investigating the Iran-Contra Affair indicted Weinberger on four counts of lying to a congressional committee and the independent counsel's office and one count of obstruction of justice. During the mid-1980s the Reagan administration sold weapons to Iran in exchange for the freeing of American hostages being held in the Middle East. Some of the proceeds from the sale were illegally diverted to the Contra rebels who were fighting the communist Sandinista regime in Nicaragua. Once the story became public, Congress created a committee to investigate the affair and an independent counsel was appointed to probe any criminal wrongdoing. Its office claimed that Weinberger had lied about his knowledge of the sale of arms to Iran. Weinberger declared his innocence and his intention of fighting the charges, but the case never went to trial. On December 24, 1992, President George H. W. Bush issued a full and complete pardon to Weinberger and several other Reagan administration figures. Weinberger died in Bangor, Maine, on March 26, 2006.

Justin P. Coffey

See also: Bush, George Herbert Walker; Reagan, Ronald Wilson; Soviet Union (USSR); Strategic Defense Initiative (SDI); Weapons, Nuclear; World War II

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WILSON, CHARLES ERWIN (1890–1961)

President of General Motors (1941–1953) and U.S. secretary of



Charles Wison, formerly president of the General Electric Company, takes the oath of office as Director of the Office of Defense Mobilization on December 21, 1950, as Chief Justice Fred Vinson administers the oath and President Truman looks on. (National Archives)

defense (1953–1957). Born on July 18, 1890, in Minerva, Ohio, Charles Wilson earned an electrical engineering degree in 1909 from the Carnegie Institute of Technology. He began his business career at Westinghouse Electric Corporation, where he was involved in the engineering of military radio equipment during World War I. He joined General Motors in 1919 and eventually became its president in 1941. During World War II he oversaw the company's massive production of military equipment.

President Dwight D. Eisenhower selected Wilson as secretary of defense in January 1953. Wilson's experience running a large corporation with significant dealings with the Department of Defense was viewed as an asset. During his nomination hearing, however, his business background led to controversy, including his initial refusal to sell his General Motors stock and a statement he made that was famously simplified to "What is good for General Motors is good for the country."

Wilson shared Eisenhower's goals of maintaining a strong defense while also reducing the defense budget and reorganizing the armed forces. This was reflected most clearly in the New Look military policy, which relied upon nuclear deterrent forces and strategic airpower in place of mass conventional forces. To implement this Wilson gradually reduced the defense budget and shifted the defense emphasis to the U.S. Air Force, leading to tensions with the U.S. Army

and the U.S. Navy. This policy transformation was most clearly seen in his 1956 decision to give the air force control over intermediate-range ballistic missiles (IRBMs) and intercontinental ballistic missiles (ICBMs) while sharply limiting the army's role in strategic missile forces.

Wilson resigned his post in October 1957 and returned to the private sector. He died in Norwood, Louisiana, on September 26, 1961.

Michael A. George

See also: Eisenhower, Dwight David; New Look Defense Policy; Weapons, Nuclear; Weapons, Space; World War II

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WORLD WAR I

The first weeks of World War I reflected the collective judgment of Europe's military leadership that modern technology had rendered battlefields so lethal and war so demanding that states and societies could endure the killing—and accompanying economic sacrifices—for only a brief time before collapsing into chaos. As a result each army sought to decide the outcome by forcing the pace. The Germans proposed to crush the French and then turn on the Russians, while the Russians intended to win the war on the Eastern Front before German reinforcements could arrive from the West, and so on.



To defend Verdun, the well-organized French artillery sends reinforcements along the vital supply route later dubbed the "Sacred Way." (Reynolds and Taylor, *Collier's Photographic History of the European War,* 1916)

Europe's war plans also had in common a vitalist emphasis on "will to conquer" that too often ignored the effects of shell fire and machine guns on poorly trained reservists who made up the vast majority of men hurried to the field and too often expected to march and fight on nearly empty stomachs. The result was a general stagnation of fronts and an overwhelming number of dead and maimed—one and three-quarters million in the West alone by the beginning of 1915.

The first response on the Western Front, the establishment of trench systems, began as an improvisation. Men on both sides began digging in, replacing maneuver with fire, and letting the other side take the risks of attacking. The last spasms of open warfare came in November 1914 as the Germans mounted a series of desperate, futile attacks in northern Belgium. In the East lower force-to-space ratios on both sides kept the fronts flexible a few weeks longer. An initial Russian offensive into East Prussia was checked at Tannenberg, then thrown back in the First Battle of the Masurian Lakes. At the same time, Russian and Austro-Hungarian armies grappled blindly on the open plains of Galicia to the south, and by mid-September an outnumbered and exhausted Habsburg army was reeling back toward its own frontiers. The Germans moved a full army into Poland, striking the Russian rear and checking their advance as winter stabilized the front in spite of the generals.

In the winter of 1914 Germany contemplated shifting its strategic focus. The Schlieffen Plan had been based on knocking France, and by implication Britain, out of the war in a single round. Now it was Russia that seemed the more vulnerable adversary both militarily and politically. Initial Austro-German offensives foundered in the snowdrifts. But on May 2, 1915, the Central Powers tore open the middle of the front on a sector 40 miles wide and sent the Russian army reeling backward—to no purpose. The tsarist government, sustained by Entente promises that exceeded any prewar dreams, refused to consider a separate peace despite huge losses of men, material, and territory.

In the West it was the Allies who took the offensive, beginning in the last days of 1914 with a French assault in Champagne that was a prototype for dozens of its successors in producing small gains for high costs. The British replicated the experience at Neuve-Chapelle in March 1915. Then it was the Germans' turn. Using the first major technical innovation of the war—chlorine gas, released in clouds to drift across Allied lines—they counterattacked around Ypres in April. The Allies held, then mounted a series of ripostes in the second half of the year. Notre Dame de Lorette, Aubers Ridge, Champagne, Loos—the now forgotten names were a litany of horror to the fighting men of both sides.

On both sides of the front, high and continuing casualties kept interrupting learning curves. For the French and Germans the young soldiers of 1914 were filling graveyards and hospitals, giving way to men in their 30s, family men who had never expected to face these kinds of demands. A British army still based on the volunteer principle saw its long-service regulars replaced by a new kind of soldier—enlisted for the war's duration in the Territorial Force or the so-called New Armies of War Minister Horatio H. Kitchener.

The Western Allies were no further along in breaking through the German

defensive systems than they had been a year earlier. The Central Powers had been successful in terms of ground gained against their Russian enemy. They had succeeded as well in overrunning Serbia in a peripheral operation that opened a new theater of operations without compensating gains in men or resources. The Central Powers seemed on the edge of conquering themselves to exhaustion.

As 1915 progressed, the Great War's paradoxes became clear. It was a conflict involving the world's resources. The focus was not merely a single continent but a single region. Northern France and Belgium, the traditional "Cockpit of Europe," was the only area whose infrastructure was sufficiently developed to prevent the war from imploding under its own weight. The farther away the war moved from its epicenter, the more it resembled traditional conflicts, with death rates from disease exceeding substantially those from combat, with logistical systems based on animal transportation, and with modern levels of firepower only sustainable periodically after long periods of buildup.

The pattern of a global war with a European focus was sustained by the nature of the naval war. Experts had predicted an early Apocalypse as the massive battle fleets of Germany and Britain clashed for mastery of the narrow seas, while their smaller counterparts grappled in the Mediterranean. Instead the dreadnoughts built at such vast expense swung at anchor, with their occasional sorties timed for mutual avoidance. The "sacred vessels" could not be risked in a combat that might, in Winston Churchill's words, "lose the war in an afternoon."

In that context it was the Allies who benefited, as German commerce was driven from the seas. The few cruisers outside home waters were pitilessly hunted down, and the colonies were overrun and occupied with the exception of East Africa, where a marginal but effective campaign distracted some of Britain's attention. Despite progressively more effective interdiction operations by an ever more proficient German submarine force, the world's ships continued to dock at Entente ports, bringing men from the empires, and from the rest of the world raw materials and increasingly finished products.

Allied control of the sea led to efforts to use that dominance to break the deadlock on land. The possibility first emerged when the Ottoman Empire joined the Central Powers. Britain responded by sending a task force into the Persian Gulf to seize the oil fields around Basra, then launched an ill-supported expedition up the Tigris River toward Baghdad. A more promising opportunity involved using the Allied fleets to force the straits of the Dardanelles and open a way to Constantinople and a warm-water supply route to Russia.

The initial attack failed, partly from poor leadership and partly from underestimating the difficulties involved. The Allies reinforced failure by committing ground troops to some of the worst terrain in Europe—the Gallipoli Peninsula. The operation lasted nine months, cost a quarter-million Allied casualties, and ended in an ignominious evacuation.

Another way to create fresh strategic opportunities seemed to be at the policy level. Italy, an ostensible ally of Germany and Austria-Hungary, had declared its neutrality in 1914. Its leaders called this "sacred egotism." The Allies responded by offering concessions, territory to be

taken from Austria and imperial prospects to be developed in the Middle East, impossible for the Central Powers to match. In May 1915 Italy entered the war and launched a massive offensive across the mountain chains that separated it from Austria-Hungary. Two years later its ill-equipped and poorly trained armies were in essentially the same places.

The year 1916 was an important turning point in Germany's war. Conventional analyses of the German attack on Verdun describe an intention of drawing the numerically inferior French into a killing ground that would systematically erode their forces to a point where collapse or negotiation became the only alternatives. More recent scholarship suggests that Chief of Staff General Erich von Falkenhayn hoped the careful preparation of the attack, including an unprecedented level of artillery preparation, would in fact produce a decisive breakthrough. The attritional element was his ex post facto rationalization of the failure of this larger aim.

Whatever Germany's intentions, the resulting Battle of Verdun was a four-month death grapple that drew the German army as well as the French army into what German soldiers called "the death mill on the Meuse." As the French grew increasingly sophisticated in using metal instead of flesh to hold and recapture positions, Verdun began taking on the mythic significance for Germany that the Germans believed it possessed for the French. It became impossible for Falkenhayn to end an increasingly pointless killing match without endangering his own position. Only the Allied attack on the Somme enabled shutting down the long-stagnated operation.

From mid-1915 conferences and memoranda had discussed the issue of a joint Franco-British attack on either side of the Somme River. Undestroyed by shell fire, the rolling, open terrain of Picardy offered opportunities for large-scale advances once the frontline defenses were broken. The German attack on Verdun and the accompanying absorption of French resources meant that the British would be taking over the major burden of the attack. The British high command was not especially enthusiastic at the prospect of an offensive in Picardy without massive French support. British Expeditionary Force (BEF) Commander-in-Chief Field Marshal Sir Douglas Haig preferred Flanders, where the Channel ports offered an immediate strategic objective. Even if the German lines could be broken decisively on the Somme, there was nothing significant behind them—just an advance into the blue and the hope something that might turn up.

As a consequence British planning focused increasingly on wreaking as much damage as possible on the German army. Britain's New Armies were only beginning to reach the front. Canadians, Australians, and New Zealanders were also arriving in force—10 divisions by mid-July. Britain's industrial capacity made it possible as well to emphasize machine warfare, in particular the use of unparalleled amounts of artillery in unprecedented close cooperation with the infantry.

The day of July 1, 1916, was one of the seminal days in British history as well as British mythology. It began with bright promises of Kitchener's New Armies spearheading a breakthrough of the German lines that would open the way to final victory. It ended with nearly 60,000 British casualties, a third of them dead, and the front lines essentially

unchanged. The artillery was unable to destroy or neutralize the German defenses. The infantry, under orders to advance at a walk and burdened with loads often amounting to more than half a soldier's body weight, were mowed down by the thousands. And the battle continued—or, rather, the twelve separate battles defined by British army authorities and awarded as "honors" to the participating regiments. For another five months, Dominion soldiers joined men from the British Isles in clawing forward a few yards at a time, over ground so torn by shell fire that in many places autumn rains turned to swamps.

The British army is increasingly recognized as maintaining a steep learning curve, improving in every aspect from tactics to logistics, and its morale was not as seriously eroded as some postwar accounts would have it. The BEF's fighting spirit and its determination to persevere were challenged by the Somme experience but survived unbroken.

Nevertheless, it is the death of illusion that makes the Somme experience so poignant in hindsight. Those who fought there remembered it as a touchstone, a watershed in their war experience. At home anticipation gave way to grief as the casualty lists came in. More than 400,000 of Haig's men were killed, wounded, or missing. The French, whose participation is often overlooked, added another 200,000 to the butcher's bill. German losses were about the same, and the Germans also suffered the erosion of their peacetime-trained cadres. But the combatants were not sufficiently influenced by their experiences to put an end to the war, or even to consider the prospect seriously.

The stalemate confirmed on the Western Front in 1916 was sustained in other theaters as well. In the Balkans an initial Allied commitment of two divisions, based on the Greek port of Salonika and increased to over a dozen during 1916, failed to do any more than maintain themselves in what cynics called "the war's largest internment camp." Allied diplomacy persuaded Romania to enter the conflict in August, but that kingdom's army was ill prepared for the kind of war the Central Powers had learned to wage. It was smashed in a lightning German-Austrian offensive commanded by Falkenhayn who, dismissed as chief of staff for his failure at Verdun, demonstrated unexpected competence in field command.

The Romanian fragments withdrew to their eastern border, joining a Russian army that had made a surprising recovery from the debacles of 1915 and was ready—at least at the level of the high command—to try actions in the field once more. An ill-planned attack around Vilna in the spring of 1916 dampened enthusiasm at the same time that French demands for an attack to relieve the pressure on Verdun increased. When the new commander of the Southwestern Front (counterpart to an army group in other armies), General Aleksey Brusilov, proposed an attack in his sector with the resources currently available, he was authorized to go ahead. Against an overextended and demoralized Austro-Hungarian army, the Russians achieved remarkable initial successes in their greatest military effort of the war. Within a month, however, the arrival of German reinforcements and the lack of Russian reserves restored a status quo confirmed by several disastrous attacks farther north. Even at sea the stalemate endured. On May 31, 1916, a sortie by the German High Seas Fleet was intercepted by the

British—thanks in part to skillful use of radio intelligence. The resulting battle—Jutland to the British and Skagerrak to the Germans—was tactically indecisive but strategically decisive. Never again would the German fleet built at such a spectrum of costs come out to challenge its rival directly. On the other hand, Jutland created no new avenue for the Royal Navy to force the issue without facing unacceptable losses.

Nineteen sixteen was the year in which all the major combatants accepted de facto an attritional model of victory. In a France already mobilized to the limit, Verdun became a symbol of determination to endure and overcome at any cost. By year's end it was growing clear that the war's price might just be France's continued existence as a Great Power. In a Britain still committed in principle to voluntarism, 1916 saw the introduction of conscription. It witnessed a reorganization of government and the creation of an increasing number of agencies of government control. Individuals, communities, and interest groups nevertheless remained the principal sources of action in a society continuing to believe that it was fighting by its own will in a righteous cause. Russia's attempts at systematization and belt-tightening increasingly foundered as a semi-modern society proved unable to produce enough competent midlevel officials and administrators to maximize available resources. An overstrained economy depended more and more on muscle power as opposed to machines—and the men and women who did the work had neither money to spend nor food to buy, as inflation soared and distribution systems gridlocked.

Matters were much the same on the other side of the line in Austria-Hungary, where ethnic and nationalist rivalries were fueled by privation and in turn contributed to economic breakdown. Antagonism between labor and industry flourished as food costs outstripped an inflation that mocked both wage increases and direct government subsidies. Agricultural production declined as men and animals were drawn into an army that only returned physical and emotional cripples to a civilian life growing increasingly desperate.

Germany, by contrast, took matters in hand. The appointment in August 1916 of General Paul von Hindenburg as chief of staff was more than a military change. Hindenburg, trailing the shadow of glory from Tannenberg and the other German triumphs on the Russian Front, was by now an emotional substitute for a Kaiser systematically excluded from any important decisions. With his partner, now quartermaster general, General Erich Ludendorff, Hindenburg was expected to bring victory to a sorely tried Fatherland. The so-called 1916 Program provided in principle for complete mobilization of German resources under government control. Hindenburg and Ludendorff demanded massive increases in munitions production and a civilian population entirely subject to regulation for the sake of the war effort. They paid no attention to the actual state of the country's resources. The result was a failure, compounded by administrative bungling, unenforceable regulations, and levels of interference in daily life that proved excessive even for a people accustomed to regimentation.

By 1917, in other words, the indicators of collapse were plain to see in every major combatant. They were neutralized, at least temporarily, by an increasing effectiveness in the techniques of war-making. The process began with a

German army that took stock of its experiences and started developing a system of flexible defense in-depth that would defy every effort to break it for the next year. That was accompanied by a strategic withdrawal from some of the more exposed sectors of the Western Front—moves to more defensible positions that nevertheless fired Allied imaginations that this time "the Hun was definitely on the run."

In April the BEF mounted at Arras a set-piece attack whose ultimate prolongation has obscured the relative effectiveness of the initial operations. The same point can be made about the simultaneous, and often excoriated, French attacks in the Chemin des Dames. The Nivelle offensive, named for its advocate and French army commander General Robert Nivelle, enjoyed an initial, limited success. Nivelle, however, had promised far more: a decisive breakthrough that would be the beginning of the war's end. In a large part of the French army the disappointment, on top of two and a half years of huge losses for little gain, led to widespread mutiny.

This was not mutiny in the classic sense, with officers shot and the red flag hoisted as rebels marched on Paris. Rather it amounted to a struggle for power within the military system, with the soldiers ultimately reaccepting authority in return for affirmation of their status as citizens of a representative democracy. The French army nevertheless spent a year restoring its equilibrium as its new commander, Philippe Pétain, promised to "wait for the tanks and the Americans."

Meanwhile, the British soldiered on, assuming primary responsibility for keeping the Germans under pressure. Since 1914 the Germans had held the high ground around the Belgian city of Ypres. A successful attack there would also threaten German communications in the Flanders sector and—with a little luck—open the way to the Channel coast and its submarine bases. In June a successful local attack took advantage of two years' worth of mining the German position to clear Messines Ridge. This was a preliminary to the Third Battle of Ypres, better known as Passchendaele.

Dismissed for years as a triumph of British butchery and bungling, the Passchendaele campaign has been significantly reinterpreted by a new generation of British military historians. These scholars make the case that British minor tactics were skillful, British administration efficient, and British command competent. The "bite-and-hold" technique of limited attacks for limited objectives significantly eroded the fighting power of a German army already stretched to its limits. What went wrong was the enduring pattern of sustaining the operation for too long, in the specific context of an abnormally heavy rainfall that checked British reliance on firepower by transforming the battle zone to a sea of sticky mud, virtually impassable by guns, trucks, and wagons.

The revisionists' well-supported case cannot entirely deny the sense of malaise affecting both the French and British armies at the turn of the year; a sense that the war would continue until nothing and no one was left to wage it. Germany was no less war weary—in good part because of the failure of one of the strategic initiatives it undertook at the start of 1917. Submarines had inflicted significant damage on British commerce in 1915, until protests by neutral nations, especially the United States, caused the campaign's suspension. In January 1917

the U-boats were again turned loose. The risks of bringing America into the war were by then considered acceptable, balanced against the expectation of starving Britain into making peace by sinking the merchantmen who were the island kingdom's lifeline.

The German U-boats enjoyed striking early success, but they never came close to the stated objective. The introduction of a convoy system in May did much to counter the undersea campaign simply by creating a much larger expanse of empty space in the North Atlantic. And the United States, whose President Woodrow Wilson was finally convinced that German victory posed an unacceptable strategic and ideological threat, entered the war on April 6, 1917. America's primary military strength was a battle fleet the Allies did not need. Wilson and his field commander, General John Pershing, were determined to assert an independent diplomatic and military presence, complicating an already strained alliance. But millions of Americans were donning army uniforms and flooding into training camps that were designed to produce fighting divisions on an assembly line basis. That made it worthwhile for the Allies to grant the new "associated power" the autonomy it demanded, especially given developments in the East.

By early 1917 the government of Russian Tsar Nicholas II had sacrificed any legitimacy it once might have possessed. A revolution supported by both moderates and radicals overthrew the empire in March 1917. The new government sought to establish its own legitimacy by continuing the war. A major offensive, named after War Minister Aleksandr Kerensky, began on June 1 but ground to a halt within days. The Germans counterattacked and Russia collapsed into chaos, with the Bolsheviks under Vladimir Lenin seizing power in November by a coup in Petrograd. Although Russia's revolutionary government resisted negotiations, its collapse as a military threat freed troops for the Western Front and a final effort.

During 1917 the Germans had developed new offensive tactics, centered on hurricane artillery barrages followed by infantry assaults based on the principle of infiltration: finding and exploiting weak spots. In the spring of 1918 the Germans massed against a British front weakened by recent extension and a British army so long on the offensive that its defensive skills had atrophied. On March 21 the attack went forward. The German army, however, lacked the mobility and striking power to convert its initial tactical successes into strategic breakthroughs. The British bent in some sectors and broke in others, but the line held to a point where the German high command began shifting its rapidly eroding strike forces from sector to sector in an ultimately fruitless effort to replicate their initial victories.

The German offensive frightened the Allies enough for them to appoint a supreme commander, French Marshal Ferdinand Foch. His powers, limited essentially to those of a coordinator, nevertheless enabled a more rational use of reserves—a process also facilitated by the Americans' willingness to suspend their demand for autonomy and throw their resources, albeit temporarily, into a common pool. A revivified French army played the key role in holding the final series of offensives, which brought the Germans almost to the gates of Paris but left them with a front line that amounted to a series of large salients with exposed flanks.

The Allied response began in July with a series of small counterstrokes: Soissons by the French and Americans, Le Hamel by the Australians. The day of August 8, however, marked the beginning of the war's end. On what Ludendorff called "the black day of the German Army," the BEF launched an army-strength attack on the German positions east of Amiens. Tanks, aircraft, artillery, and infantry combined in a "managed battle" that pushed the front back 8 miles on the first day, caused masses of German soldiers to throw down their arms and flee, and put the Germans permanently off balance.

Their failure to recover was in good part the consequence of a further sequence of coordinated Allied offensives: the British in the north, around Arras and in Flanders; the French and British at Bapaume/Peronne; and the Americans at Saint-Mihiel and finally in the Meuse-Argonne. These were all tactical triumphs. The tanks that so often facilitated them were still essentially one-shot, throwaway weapons. Aircraft were vulnerable to ground fire. Radios were still bulky, fragile instruments. The internal combustion engine was as yet too undeveloped to be useful in forward areas, let alone convert tactical successes to operational ones.

The "Advance to Victory" during the "Hundred Days" of Autumn 1918 was not a continuous operation but a series of hammer blows. Each required time to prepare the next strike, but as its casualties mounted and its morale declined, the German army was no longer able to mount the ripostes its operational doctrine demanded. Instead it fell back, covering and counterpunching like an overmatched boxer inexorably forced into a corner.

Germany's peace with Russia, finally concluded at Brest Litovsk in March 1918, brought it no immediate gains. Rather, its harsh terms confirmed the Allied belief that the Central Powers would merit no consideration when their turn came. A final Austro-Hungarian offensive in Italy stalled in June; the Dual Monarchy began dissolving from internal tensions well before the Italian counterattack at Vittorio Veneto four months later. Turkey capitulated in the face of a British offensive in Palestine during September and October. The "gardeners of Salonika" left their cultivation long enough to smash through a weakened Bulgarian army and drive up the Danube River into the vitals of what were rapidly becoming Austria-Hungary's successor states.

On October 1 Ludendorff declared the war lost. Two days later Prince Max von Baden became German chancellor and requested peace on the basis of President Wilson's Fourteen Points. First announced in January 1918, these called for, among other things, arms reduction, open diplomacy, and freedom of the seas, none of which was previously attractive to the Second Reich. On October 28 Germany officially became a constitutional monarchy—a case of "too little, far too late." On November 9, Kaiser Wilhelm fled to Holland and a republic was proclaimed in Berlin. It was that republic which was granted an armistice: on November 11, 1918, the guns of August finally fell silent.

Dennis Showalter

See also: Arms Manufacturers/Defense Industry Contractors; France; Soviet Union (USSR); United Kingdom (UK); Weapons, Air; Weapons, Land; Weapons, Sea

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WORLD WAR II

World War II was an industrial war on an unprecedented scale. Industrialized countries around the world vied for domination, employing material and industry never before witnessed. Entire populations were mobilized to prepare



Women working in Douglas Aircraft's Long Beach, California, assembly plant during World War II complete final inspection of nose cones for A-20 attack bombers. (National Archives)

for and prosecute World War II. In the end the material dimension of the war, industrial mobilization, was one of the key factors for victory; the United States became the "Arsenal of Democracy" that won the key industrialized battles of World War II.

In the 1930s there was a global economic depression. The United States was mired in economic crisis, unable to maintain military spending and unwilling to become involved in international affairs. Germany began early recovery by instituting government spending for their military; it began to rearm. Britain and France adopted negligible rearmament programs, but were unable and unwilling to commit to aggressive remilitarization. The fledgling Soviet Union was still feeling reverberations from their Civil War and Revolution and was in the delicate process of rebuilding. In Asia, Japan was ascendant and determined to create an empire.

The United States was dedicated to minor Research and Development programs; most were fueled by industry without significant government funding or oversight. Some "civilian" technology translated well to military applications such as aircraft (airliners and transports for military applications), cars and trucks and integrated technologies (engines for trucks as military power plants), and the shipping industry became dual purpose. When the world went to war for the second time in the 20th century, American industry, while not at its full potential, was in a position to supply the needs of the Allies. However, it is important to note that the war solidified rather than separated the coordination between the American military and industrial sectors.

The first warnings of impending danger came from Asia. Japan sought to expand her empire, and took action against Korea, Manchuria, and China. In the United States, the response was increased emphasis on naval shipbuilding and defense of the Pacific. Efforts to expand the fleet as well as secure forward bases (such as Pearl Harbor, Hawaii) were adopted in the face of Japanese aggression. Naval shipbuilding on the east coast was reinvigorated. However, shipbuilding did not have immediate effect; ships take years to build. The first and second Vinson Acts (1934 and 1938) and the Two Ocean Navy Act (1940) did not predict full U.S. naval power for upward of a decade. Fortunately when the United States entered the war in 1941, these plans were in process and U.S. shipbuilding capacity and effort were expanded to fulfill the government's wishes and military's needs for hostilities.

The U.S. aircraft and automotive industries fared slightly better. Trucks and planes were easier to build, and could be manufactured more quickly. Thus, with the start of the war in Europe in 1939, American industries were contracted by France and England to provide needed machinery for war against the European Axis powers (Germany and Italy). The Germans specifically had better and more equipment than the French and British; at the start of the war in Europe they both scrambled to obtain supplies to fight German aggression. U.S. industries such as Bell Aircraft, Ford, and GM mobilized to provide supplies to European partners. Further, the U.S. government stepped up to provide important research and development (R&D) funding for American industry with the concern that the United States may have to become involved in the emerging global struggles. Companies

like Boeing were funded to research aircraft types suitable for wartime use.

When France collapsed in 1940, both the British and U.S. governments stepped in to secure voided contracts. The marriage of U.S. industry to the government (as the parent of the U.S. military) was almost complete. Even without an American entry into the war, contracts for military supplies from home and abroad helped bring a conclusion to the economic crisis in America, reemploying workers, increasing productivity, and infusing much-needed capital into the U.S. economy.

After the Japanese attack on Pearl Harbor, and subsequent U.S. entry into World War II against the Axis powers, the United States institutionalized the Military-Industrial Complex. It began in early 1942 with the War Industries Board (WIB), government oversight of American industries. Manufacturing was quickly converted to supply the military's needs as American industry was restructured. The U.S. government stepped in and directed industry by offering lucrative contracts for military manufacturing. The WIB was responsible for streamlining American industry to meet the challenges of the war for both the European and Pacific Theatres. Embedded in the relationship were funds for R&D for better weapons systems as well as money for continuing supplies for military needs. The government supplied the incentive for a closer relationship between the military and industry.

As well, military officials also became involved in close cooperation with industry. In many specific cases industry leaders were brought to Washington to discuss contracts and needs; the government facilitated close coordination. Further, military officers helped to design and test weapons systems in direct consultation with industry. In a specific example, U.S. Army Air Forces pilots were sent to aircraft manufacturing companies to test planes before series production. In an even more obvious case, academics were hired by the government, then sequestered, to produce the single most important example of the Military-Industrial Complex: The Manhattan Project. Designed by the brightest scientific minds, funded by the government, with a single military purpose, the development of the atomic bombs remains the prime example of this relationship. Other examples include the Office of Scientific Research and Development and The RAND Corporation, the latter of which initially coordinated efforts between the U.S. Army Air Forces and the Douglas Aircraft Company. The cross-pollination efforts were beneficial for military production and also cemented ties between the U.S. military and American industry.

What evolved throughout World War II became close cooperation between the two sides of the Military-Industrial Complex. American industry grew exponentially and supplied massive amounts of wartime material for our military and our Allies' use. The United States, which was not threatened, became the industry that provided the machines of war. Our allies (predominantly the British and Soviets, but to a lesser extent the Australians and Chinese) benefited from American production and industrial capacity. The United States built the machines that eventually overwhelmed the Axis in both theatres of war. One example is the cross-channel invasion of Europe at Normandy in June 1944. Combining air, sea, and land weapons, used by American, British, and Canadian

troops, the western Allies gained a foothold in France and created a second front for the Germans. With the Soviets—using American-built trucks, jeeps, and planes—fighting on the Eastern Front, the Germans were forced to fight overwhelming odds against American machines and determined manpower. Although German machines and technology were good, Allied material superiority—and the U.S. Military-Industrial Complex—destroyed German military ability on land, at sea, and in the air. The cross-channel invasion was an illustrative example of the material might of the Allies and marked the downfall of German hegemony on the continent.

In the Pacific the Americans were overwhelmingly superior. After the destruction of the fleet at Pearl Harbor, then the turning point at Midway, American industrial capabilities allowed American strategic choices in the Pacific. After Midway (June 1942), the United States had three fleet aircraft carriers in the Pacific to the Japanese three. In the rest of the war, U.S. industry was able to outproduce Japanese industry immensely; the United States built a further 96 aircraft carriers (of all types) to the Japanese six. The United States also outproduced the Axis in all other areas, air, land, and sea weapons systems in overwhelming quantities. The Allies still had to win the war, but we were assured that the materials were available for victory. In an illustrative example, by summer 1945, the United States did not even have to destroy all of the Japanese Army still in China; the United States forced Japan to surrender with direct attacks (including two atomic bombs) on the Japanese home islands. The United States combined air, sea, and land assets to defeat Japan without a direct invasion.

By the end of the war, the United States led the world in industrial production of military hardware. Although most manufacturing was converted to civilian production by the end of the war, the U.S. government decided to institute continued military production in the postwar period, as compared to cessation of military production as had happened in the past. The United States realized that there was a new ideological struggle emerging, the Cold War with Soviet Russia. In the United States, an emphasis on military supremacy was continued; the U.S. Military-Industrial Complex was born. Continuing on the successes of military supremacy during the war, the United States made a conscious decision to maintain military supremacy into the post-war period. Further, the United States instituted continued R&D programs to also increase military capabilities and material supremacy with unprecedented funding for advanced weapons systems. The U.S. Military-Industrial Complex relationship continued into the Cold War as the United States endeavored to maintain—and increase—military capabilities and technological supremacy. The United States emerged victorious from World War II; they were determined to maintain the technological lead into the Cold War.

S. Mike Pavelec

See also: France; German Democratic Republic (GDR, East Germany); Germany, Federal Republic of (FRG, West Germany); Los Alamos, New Mexico; Manhattan Project; Oak Ridge, Tennessee; RAND Corporation; Scientific Research and Development, Office of (OSRD); Soviet Union (USSR); United Kingdom (UK); War Production Board; Weapons, Air; Weapons, Land; Weapons, Nuclear; Weapons, Sea

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Index

Note: Page references in bold font refer to the main entries for that topic.

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